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TRANSACTIONS

OF THE

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

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VOLUME I.

SESSIONS 1895-96, 1896-97.

EDITED BY

C. O. HAWTHORNE, M.B.,
HONORARY SECRETARY TO THE SOCIETY.

GLASGOW:
ALEX. MACDOUGALL, 68 MITCHELL STREET.
1897.

UNIVERSITY COLLEGE LONDON

GLASGOW:
PRINTED BY ALEX. MACDOUGALL.

PREFATORY NOTE.

—o—

THE GLASGOW MEDICAL SOCIETY was instituted 27th October, 1814.

The place of meeting was the Hall of the Faculty of Physicians and Surgeons in St. Enoch Square,[1] and this privilege was accorded by the Faculty throughout the entire period of the existence of the Society.

The members were elected by ballot and paid an entrance fee of one guinea, which admitted to life membership.

From the commencement of the Society a rigorous system of fines was instituted and enforced with a view to ensure regular and punctual attendance at the meetings, and each member was compelled to contribute to the Society's proceedings.

During an early period of the history of the Society, lists of the deaths in Glasgow, and a register of the weather during the three preceding months, were presented at a quarterly meeting by a committee specially appointed for the purpose; and at this meeting the prevailing diseases were discussed. This arrangement, however, was soon changed, and the meeting on the first Tuesday of each month was reserved for the consideration of the papers[2] read by the members in rotation; and the meeting on the third Tuesday was reserved for "professional conversation," *i. e.*, discussion of the prevailing diseases, of interesting

[1] In June, 1862, the Hall of the Faculty was removed to St. Vincent Street.

[2] These, consisting of about forty vols. of Manuscript Essays, are now in the custody of the Librarian of the Faculty of Physicians and Surgeons.

cases, and of other professional topics brought forward without previous announcement.

The MEDICO-CHIRURGICAL SOCIETY OF GLASGOW was instituted 27th June, 1844.

The meetings were arranged to avoid interference with those of the older Society, and were held in the Hall of the Faculty of Physicians and Surgeons, the same privileges being extended to this Society that were granted to the Glasgow Medical Society.

The members were admitted by ballot, and an annual contribution of five shillings was payable.

Attendance at meetings and the reading of papers were entirely voluntary, and there were no fines.

By mutual agreement, the GLASGOW MEDICAL SOCIETY and the MEDICO-CHIRURGICAL SOCIETY OF GLASGOW were amalgamated in June, 1866, and a New Constitution was framed for the united Society.

In October, 1886, a change was made in the Constitution of the Society. For the better cultivation of special subjects, the following four Sections were formed—viz., Medicine, Surgery, Midwifery and Gynæcology, and Pathology.

The Society decided to publish its transactions in October, 1895, and appointed a committee consisting of Mr. H. E. Clark, Dr. C. O. Hawthorne, Dr. J. Lindsay Steven, and Dr. T. F. Tannahill, to carry this resolution into effect. The present volume is the first result of this decision. It is hoped that the establishment of a permanent record of the Society's work will prove of value both to members and to all others interested in the advancement of professional knowledge.

October, 1897.

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TRANSACTIONS

OF THE

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

—o—

SESSION 1895-96.

—o—

Meeting I.—4th October, 1895.

The President, Dr. W. L. Reid, *in the Chair.*

The President referred to the death of Dr. Carslaw, who had been a member of the Society for five years, and the reporter of their proceedings for four years. He had known Dr. Carslaw in public and in private; and he heard of his death with sorrow and regret. He moved that a vote of condolence be passed, and it was remitted to the President and the Secretary to draw up a minute to this effect, and transmit the same to the relatives of the deceased.

I.—FRESH SPECIMENS FROM A CASE OF CEREBRAL HÆMORRHAGE.

By Dr. C. O. Hawthorne.

Dr. C. O. Hawthorne showed as fresh specimens, the brain, heart, and kidney taken from the body of a man, æt. 50, who had died on the previous day. The brain was the seat of a large recent hæmorrhage occupying the pons, and extending

backwards into the cerebellum.[1] On each side it passed some considerable distance from the median plane. The arteries in the cranial cavity were highly atheromatous. In the heart the wall of the left ventricle was considerably hypertrophied, but there was no valvular disease. The kidneys manifested the appearances produced by chronic interstitial nephritis.

The patient, when seen two hours before death, was absolutely unconscious, markedly livid, and with all the limbs flaccid. The pulse was full and strong, but respiration had almost completely failed, there being merely an occasional inspiratory effort. Pupils dilated and immobile. A specimen of urine, withdrawn by the catheter, the bladder being distended, was highly albuminous. It was decided to perform venesection, and 28 oz. of blood were withdrawn from the right median cephalic vein, but without producing any appreciable change in the patient's condition. The only history obtainable was that the man had suddenly become unconscious when engaged in his work as a labourer.

II.—IDIOPATHIC ENLARGEMENT OF THE SPLEEN, WITH RECURRENT ATTACKS OF PURPURA.

By Dr. C. O. Hawthorne.

Chronic enlargement of the spleen is a not uncommon event in a number of diseases to which children are liable, and its association with leucocythæmia, lymphadenoma, malarial infection, amyloid disease, and cirrhosis of the liver is generally recognised. It may also be present with the signs of inherited syphilis, and it is not infrequent to find it together with evidences of rickets. In the case recorded below, whilst splenic enlargement, both in duration and degree, is the leading clinical feature, there is an entire absence of all positive evidence to support a diagnosis of any of the above-mentioned conditions; and, on the other hand, the manifest depreciation of the child's health, and the occurrence of repeated attacks of purpura, point only too clearly to some morbid influence which is exercising its unfortunate power over a wide area of the tissue activities of the patient. What the nature of this morbid influence is seems beyond the reach even of conjecture, and we must for the present be content to record the facts

[1] Further dissection revealed the extension of the hæmorrhage through the left crus cerebri into the optic thalamus and internal capsule. A second hæmorrhage, of moderate size and recent origin, was also found in the right internal capsule.—C. O. H.

of the case, and to speak, *faute de mieux*, of the splenic enlargement as idiopathic.

K. I.,[1] now 11 years of age, was brought to the out-patient department of the Western Infirmary in June, 1893, on account of general failure of her health and of a swelling in the abdomen. She had suffered from measles when an infant, and again when 5 years of age, but otherwise had been an exceptionally healthy child until September, 1891, when she had an attack of influenza. This was followed by jaundice, and suppuration of the cervical lymphatic glands, her illness confining her to bed for nearly four months. She remained for some time in a weak state and very sensitive to cold, and in the early part of the winter of 1892-93 had an attack of purpura, which was confined to the lower limbs; there were no discharges of blood except slight bleeding from the gums. In January, 1893, her mother noticed that the abdomen was swollen. At an even earlier date the child had been subject to occasional diarrhœa, but there had never been any vomiting or complaint of abdominal pain. Physical examination at once revealed very considerable enlargement of the spleen, the lower or anterior extremity of the organ reaching almost to the middle line in front, and the inferior border descending to a line about 1 inch above the left iliac crest. Percussion placed the upper border, in the mid-axillary line, at the fifth rib. The tumour had a perfectly smooth surface, and was quite free from tenderness. On examining the hepatic region, the liver appeared to be slightly enlarged and its tissue unduly firm. Thus, the sharp anterior edge of the organ was felt below the costal margin, and was more definite and pronounced than is normal. The heart and lungs, to physical examination, were normal, and the urine free from albumen and sugar. The blood showed a few small-sized red corpuscles, but no increase in the number of white corpuscles: hæmoglobin, 50 per cent; red corpuscles, 65 per cent. The general appearance of the child suggested languor, and there were evidences of anæmia, the skin generally being pale with a faint sallow tinge; gums not spongy nor excessively vascular, but the lower incisor teeth were loose, and on moving them there was some inclination of the neighbouring gum to bleed. Odour of breath very disagreeable. No retinal hæmorrhages. No suggestion of rickets or of inherited syphilis in any part of the body, and no enlargement of superficial lymphatic glands other than a few firm glands near each angle of the jaw. She was at this time admitted as an in-patient and remained for

[1] The patient was shown to the Society.

some weeks under observation, but without the emergence of any fresh facts throwing light on the nature of the case. Since leaving the hospital she has been seen at frequent intervals, and the physical facts of the case have remained without substantial change, but on three occasions (in addition to the above) she has suffered from purpura. The first attack, in July, 1893, was a slight one, petechiæ and ecchymoses being small and confined to the lower limbs; in February, 1894, a very severe and widely spread eruption of purpuric spots and bruise-like patches appeared; and in August, 1895, after the enjoyment of fair and even good health for a period of eighteen months, she once more became very listless and languid, and some bleeding from the gums occurred, this being followed in the course of a few days by a very free hæmatemesis. She has now recovered from the immediate effects of this, and, though pale, appears vigorous and active. It may be mentioned that the child's home conditions are favourable, and there is no ground for suspecting the existence of a scorbutic element in the case. There is one other child in the family, a healthy girl, two years younger than patient; there have been no deaths. Father and mother healthy; no miscarriages. Maternal grandmother and a maternal aunt died of consumption, and in August, 1894, a second maternal aunt died of Addison's disease after only a few months' illness. As implied in the above statement, treatment, as far as the splenic condition is concerned, has been quite unavailing, but the general condition of the child has always improved after residence at the coast, and iron and arsenic in full doses have appeared to exercise a beneficial influence. Indeed, for the most part, anæmia, since the child has been under treatment, has not been a prominent feature of the case, the blood usually showing about 70 per cent of hæmoglobin. Similarly the state of the general nutrition is, and has been, fairly satisfactory.

The occurrence of purpuric symptoms in association with enlargement of the spleen has been observed by various authors, and the condition described under various terms. Eustace Smith[1] speaks of a "simple hyperplasia of the spleen," which may occur without any "sign of diathetic disease or constitutional weakness," and notes that in such cases petechiæ and bruise-like patches may be present in the skin, and that epistaxis is common. These patients, too, he says, are very sensitive to cold and liable to gastro-intestinal troubles. As bearing on the present case, it is worthy of note that Smith has recorded a case in which the splenic enlargement appeared

[1] Eustace Smith, *On Diseases in Children* (second edition), pp. 248, 249.

after an attack of jaundice, and he has also observed it in patients with a recent history of measles. Dr. West[1] has observed splenic enlargement (not leukhæmic) in cases displaying a purpuric eruption and hæmorrhages from mucous membranes. Starr,[2] in an article on "Splenic Anæmia," which he defines as a condition of "marked anæmia, with no appreciable lesion save enlargement of the spleen," says that in such cases epistaxis and subcutaneous hæmorrhages may be present. The same author, when speaking of "Subacute Purpura Hæmorrhagica,"[3] states that the disease may be protracted for weeks, months, or years by the recurrence of attacks at irregular intervals, and adds that "the spleen and liver are usually enlarged during the attack." Dr. Harlingen,[4] in discussing the same condition, remarks that "when hæmatemesis occurs there is usually some pain in the left hypochondrium with splenic enlargement." Griffith[5] describes a "Splenic Anæmia" with cutaneous hæmorrhages and epistaxis, and regards the enlargement of the spleen as the cause of the anæmia and hæmorrhage. Under the terms "Lienosis" or "Splenic Cachexia," Angel Money[6] places a condition characterised by "a simple hyperplasia of the spleen, anæmia, and an extraordinary cachectic tint of the surface," and states that with these symptoms may be associated hæmorrhages into the skin and from the nose and elsewhere. Henoch[7] describes "simple hypertrophy of the spleen" as by no means rare, and adds that with it is found a peculiar yellowish-white tint of the skin, and often "little blood-extravasations in the skin;" he has also observed exhausting hæmorrhages from the nose. As a rule, in his cases, the etiology could not be determined, but they were not cases of leucocythæmia. The case now recorded is manifestly very similar to the group described by Henoch, but it is to be remarked that the degree of anæmia has never been so extreme as is frequently noted in the so-called "splenic anæmia," whilst the enlargement of the spleen has been very considerable and very persistent. This contrast makes it difficult to believe that the splenic hypertrophy is the

[1] West, *Lectures on the Diseases of Infancy and Childhood* (sixth edition), p. 737.
[2] Starr, *An American Text-Book of Diseases of Children*, pp. 384, 385.
[3] *Ibid.*, 397.
[4] *Keating's Cyclopædia of the Diseases of Children*, vol. ii, p. 82.
[5] *Ibid.*, vol. iii, p. 798.
[6] Angel Money, *The Treatment of Disease in Children*, p. 101.
[7] Henoch, *Lectures on Children's Diseases* (Sydenham Society's translation), vol. ii, pp. 126-131.

"cause" of the anæmia, a phrase which in any case cannot be said to convey much light. It seems more reasonable to regard all the symptoms as the result of a common cause, of the nature of which we know nothing, and to indicate our ignorance by describing the case as one of idiopathic enlargement of the spleen with recurrent attacks of purpura.

III.—A PATIENT WITH AN ABNORMAL CONDITION OF THE ARTERIES OF THE LEFT UPPER LIMB.

By Dr. C. O. Hawthorne.

This patient, a man æt. 45 years, was shown on account of an abnormal condition of the arteries of the left upper limb. The left brachial artery could be seen to divide into two branches on the inner side of the biceps muscle, at a point half an inch above the level of the internal condyle. The larger branch, representing the ulnar artery, pursued a superficial course in front of the muscles arising from the internal condyle, and, descending into the fore-arm, could be seen and felt immediately below the skin, as far down as a point 3 inches above the wrist joint. Below this the vessel was more deeply situated; but its pulsations could be appreciated in front of the wrist joint and to the outer side of the tendon of the flexor carpi ulnaris. The smaller of the two branches formed by the division of the brachial passed from its origin almost directly downwards for about half an inch, and then turned somewhat abruptly outwards, disappearing behind the bicipital fascia. Presumably it divided into the radial and interosseous arteries. The radial artery in the lower part of the fore-arm occupied its usual situation. The arteries generally exhibited degenerative changes; and their tortuous course, and the visible pulsations they displayed, rendered their course conspicuous in so far as they were placed in the superficial tissues. No other abnormality was detected in the arterial system. The course of the vessels in this case is similar to that figured in various anatomical works[1] amongst the recognised abnormalities in the arteries of the upper limb.

Mr. H. E. Clark was very much interested in the case, and thought it rare enough to be noted. In his experience a high division of the ulnar is not so common as of the radial, and the

[1] Tiedemann, *Plates of the Arteries of the Human Body*, plate xv, fig. 1; Quain, *Anatomical Plates*, vol. ii, plate 11, fig. 5; Quain's *Anatomy* (tenth edition), vol. ii, part ii, p. 445.

division is usually immediately below the axilla. The artery probably owed its tortuous course to its position in the subcutaneous tissue, and this position exposed the man to injury, such as a cut, and fatal bleeding.

IV.—WORD-BLINDNESS AND VISUAL MEMORY.

By Dr. Hinshelwood.

Dr. Hinshelwood read a paper on the above subject, and described a case.

The paper appears *in extenso* in the *Lancet*, 21st December, 1895, p. 1564.

Meeting II.—18th October 1895.

Dr. J. W. Allan *in the Chair.*

CLINICAL DEMONSTRATION OF CASES ILLUSTRATING VARIOUS DISEASES OF THE NERVOUS SYSTEM.

By Dr. Middleton.

I.—A CHILD WITH SPASTIC DIPLEGIA AND ATHETOID MOVEMENTS BOTH OF HANDS AND FEET.

J. W., æt. 4 years. Double spastic condition—legs more than arms—specially induced by walking, which she does on the balls of the toes with feet in position of equino-varus. Spasm alternates with flaccidity; when flaccid, reflexes well marked, but no ankle clonus. Sensation apparently normal. Athetoid movements of hands and feet, especially on attempted action. Occasional internal squint of right eye. Bladder and rectum normal. Mentally rather feeble; articulation defective.

History.—Result of twelfth pregnancy; six others alive and well; four miscarriages at seven months, and one at three months; labour normal; no asphyxia neonatorum. Healthy up till eight weeks; then a week of convulsions; nothing then noted till fifteen months old, when she walked with support, but on her toes, and right leg feebler than left.

Eye movements normal. The pupils react normally to light and in accommodation. Fundi normal; some hypermetropia.

II.—A YOUNG WOMAN WITH POST-HEMIPLEGIC ATHETOSIS OF THE RIGHT HAND.

J. B., aged 21 years. The patient, when first seen by Dr. Ness (23rd September, 1895), complained of the condition of the right hand, which on being examined was found to be affected with "mobile spasm."

The onset of this condition is associated with an illness which she had when about 7 years of age. She says she had then "congestion of the lungs," "gastric fever," and "water in the head," the one condition succeeding the other. Altogether she was confined to bed for about three months. Within a fortnight of getting up the patient became paralysed on the right side. The girl repeats the story of the mother that she was unconscious during her illness for about three weeks; it is difficult to say what exactly happened at the time of the onset of the paralysis. However, it is stated that at the onset there was twitching of the right side of the face and of the right arm, but none in the leg. (There were no general convulsions). Immediately after this the mother found the whole right side powerless.

After getting up the patient was in the house for about three months, during the latter part of which time she was able to walk about, but the power was much longer in returning to the arm. In January of the following year (her illness had begun in August) she was able to attend the Western Infirmary two or three times a week as an out-door patient for electrical treatment. This was continued for about six weeks.

Subsequently she was confined to the house more or less for a year, on account of an accident resulting in the fracture of a couple of ribs. After this she was again treated by electricity for seven weeks.

During all this time the patient states that there was little or no power in the arm, and during the following two or three years, though nothing was done, a certain amount of power returned, but with it, the spasmodic condition of which she now complains.

The patient had whooping-cough when six weeks old, but has never had measles, scarlet fever, rheumatic fever, or St. Vitus's dance.

The patient is well developed and well nourished, but rather short for her age. She is very intelligent, and her memory is good, the above history being obtained from herself. Though

in great part repeated from what her mother has told her, yet she remembers a great deal of it herself.

Her physical health is good in every way. The only complaint she has is in reference to the right hand and arm.

There seems to be always a certain amount of rigidity present about the muscles of the forearm, fixing the wrist, because when the hand is allowed to lie undisturbed on the knee, though the fingers are quite flaccid, the wrist is more or less fixed. Passive movement of the fingers or wrist cannot be made without mobile spasm being set up.

Whenever she attempts to do anything with the fingers they become quite rigid, and the subject of typical athetoid movements.

The whole right arm is somewhat smaller in size than the left, and to a less extent the same may be said of the leg (below the knee).

The knee-jerks are present on both sides, but it does not seem as if that on the right side was exaggerated.

There is no evidence of any facial condition the result of past paralysis.

The following measurements of the arms were taken at the same levels—viz.:—

	Right.	Left.
1. Over the biceps, . . .	$9\frac{3}{4}$ in.	$10\frac{1}{4}$ in.
2. Under the elbow, . . .	$9\frac{1}{4}$ „	$9\frac{1}{4}$ „
3. Round the wrist, . . .	6 „	6 „

The following measurement was taken at the thickest part of the calf:—Right, $13\frac{1}{2}$ in.; Left, 14 in.

III.—A MAN WITH BILATERAL FACIAL PARALYSIS AND ABSOLUTE DEAFNESS.

A. C., æt. 27, was admitted with double facial paralysis and absolute deafness. He served as a soldier in India from 1891, and while there had various Indian diseases and syphilis. In January, 1894, he had a swelling of the scalp, which spread over the head and face; this disappeared on blistering. In February he had enteric fever, was ill three months, and was delirious part of the time; on regaining consciousness his face was paralysed. In June he had "slow fever," and at the beginning of the illness he suddenly became deaf. He was invalided and sent home in October, 1894.

Both facial and auditory nerves are affected; the other cranial nerves have escaped.

Eye movements normal, with the exception of very slight defect of each external rectus. The left pupil somewhat oval in shape, but both pupils react well to light and accommodation. Patient has full vision.

Pupils dilate well under homatropine. The optic discs are slightly pinkish, and the edges are somewhat indistinct. This condition is more marked in the left eye.

IV.—A WOMAN WITH OLD-STANDING LEFT FACIAL PARALYSIS, NOW PRESENTING CONTRACTURE AND SECONDARY OVER-ACTION.

Mrs. M'G., æt. 40, admitted 26th September, 1894, with paresis of right face, arm, and leg, and purpura hæmorrhagica. Six and a half months pregnant; ill fed for four months; had to cease work on 13th September owing to weakness, and purpura appeared about the same time on the neck, arms, trunk, and legs. On 17th September, gradual loss of consciousness with "delirium" (? aphasia) followed by right hemiplegia. Improved prior to admission. Slight enlargement of cardiac dulness to left, and brief V.S. murmur at apex, with accentuated pulmonic second sound.

Urine: albumen, pus, and tube-casts.

Choked disc in each eye.

Abortion on night of admission. Continuous improvement up till 19th November, when headache and vomiting came on, regarded as a "bilious attack," to which she was subject; but on 21st November *left* face was found completely paralysed. Total loss of response to either current in facial muscles (left). Hearing rather better on left; right meatus plugged with wax. Tenderness and apparent thickening over left mastoid.

On 27th November an epileptic fit, preceded by twitching at left angle of mouth, but convulsive movements becoming bilateral; none since. Repeated attacks of pain in left mastoid, and vomiting.

Dismissed 29th December, 1894, with left facial palsy, but right hemiplegia not apparent.

October, 1895.—Left facial paralysis, with contracture and secondary over-action of muscles about angle of mouth.

Ophthalmoscopic examination under homatropine, 15th November, 1894.—The right optic disc is pale on the temporal side, and on the nasal the edges are indistinct. There is deep physiological cupping. The arteries are pale, but more distinct than in the left eye. There are no hæmorrhages present, nor are there any signs of past hæmorrhage. The

left optic disc is pale, and somewhat yellowish in colour; the edges are indistinct; the arteries are represented by the bright line, as if there was not enough colour in the blood to render them visible. The veins are about normal in size, but dark in colour.

16th October, 1895.—Patient has full vision in each eye, both for the distant and near types. The left palpebral fissure appears much smaller than the right, and the left eye sometimes tends to turn outwards. Both eyes move freely in all directions. The pupils react normally to light and in accommodation.

Ophthalmoscopic Examination.—The fundi are practically normal, though the right optic disc seems somewhat pale, and the edges of the left optic disc slightly indistinct.

V.—A WOMAN SUFFERING FROM BULBAR PARALYSIS, WITH MUSCULAR ATROPHY AND INCREASE OF REFLEXES.

Mrs. J., æt. 39, was admitted on 20th August, 1895, with very manifest atrophy of the muscles of both arms and hands, so advanced as to give the characters of the "main en griffe"; also well-marked atrophy of the facial muscles, and, to a much less extent, of the muscles of the lower limbs.

History bears that the illness began eighteen months ago with hoarseness and indistinctness of speech, difficulty in swallowing, and dribbling of saliva. She had had headaches, chiefly occipital, but no vomiting. Left arm became affected about September or October, 1894, the middle and index fingers being the first involved, and apparently paralysis preceding atrophy. Right hand said to have become affected only about May, 1895.

Prior to admission had incontinence of urine. Does not admit any locomotor difficulty. No history of syphilis. Has had fourteen children and one miscarriage. Great atrophy of tongue and masseters. Has several times had dislocation of lower jaw on both sides. Cannot articulate. Swallows with difficulty. Palate moves apparently normally, and jaw-jerk well marked. Arms—great atrophy. Marked jerks. Tremors well marked in many muscles. Diaphragm paralysed. Legs—slight atrophy. Marked knee-jerks. Emotional. Bowels and bladder normal.

Eye movements normal. Pupils react normally to light and in accommodation. Patient has full vision.

Fundi practically normal, though the left optic disc is somewhat pinkish, and the vessels full. Physiological cupping.

VI.—A BOY WITH BILATERAL PERIPHERAL NEURITIS, APPARENTLY DUE TO ADMINISTRATION OF LIQUOR ARSENICALIS.

H. D., æt. 11 years, admitted 4th June, 1895, with marked peripheral neuritis, affecting the four limbs, but not involving any other parts. Complete wrist-drop on the left, less complete on the right. Foot-drop well marked on both sides. Tenderness of calves and of balls of toes. Well-marked atrophy and loss of knee-jerk. Absolutely unable to stand. No impairment of sensation.

History.—Towards the end of 1894 had headache, general feeling of cold, followed by swellings of hands, face, and feet, more marked at night, associated with scanty urine and white sediment mixed with blood. This statement of the parents must be received as doubtful, as the doctor in attendance states there never was any nephritis, nor any blood in the urine. There was also sickness and vomiting, especially after food, and a pain shooting from the small of the back round both sides of the trunk.

In December he had an attack of pemphigus, treated by arsenic, and on 19th January, 1895, he entered an infirmary. He was treated there by Fowler's solution in gradually increasing doses, so that on 27th February a maximum of 22 minims three times a day was reached. The paralytic symptoms, according to patient and his mother, were fully developed before he was taken home on 3rd April. Has always been a nervous child; never had scarlet fever, measles, or diphtheria.

Eye movements normal. Pupils react normally to light and in accommodation. Patient has full vision.

Ophthalmic vessels full, especially the veins, which are also considerably twisted. Patient is hypermetropic.

VII.—A PATIENT ALMOST COMPLETELY RECOVERED FROM SEVERE BILATERAL PERIPHERAL NEURITIS (SYPHILITIC?) IN WHOM THE KNEE-JERK REMAINS ABSENT.

A. W., æt. 26 years, marine engineer, admitted 28th October 1893, with loss of power in legs, and numbness of two month's duration. The patient had enteric fever six years ago, and in May, 1893, he had a chancre, followed by suppurating bubo, but no secondaries. Not alcoholic. The illness began in August, 1893, with numb feeling in right foot; in a fortnight, similar feeling in the left foot. After another fortnight, had difficulty in controlling movements of legs

when walking. Since 14th October, weakness of grasp observed, and a weak feeling in the back. No lightning pains, no girdle sensation, no gastric, vesical, or rectal troubles.

Ataxic gait. Sways with eyes closed and feet together. Knee-jerks absent. Impaired sensation in feet and legs. No visual defect, eyes normal in every respect. Slight roseolar rash on neck and chest. Treated with perchloride of mercury and iodide of potassium, then with injections of orchitic fluid. Condition steadily became worse. Dynamometer recorded at first—R., 80; L., 70; and on discharge on 10th March, 1895, it had fallen to—R., 25; L., 23. Seen 27th December, 1894, when he stated that since a month after he left he has continuously improved without medicine. Can now walk a mile without the aid of a stick. Knee-jerks still absent.

18th October, 1895.—Can now walk 10 miles, and is again working as an engine fitter.

Dr. Sloan was very much interested in all the cases, and particularly so in Case IV, as he had under his care a similar case in which the palpebral fissures were unequal, more especially when the patient laughed; it could then be seen that the left palpebral fissure was less than the right.

Professor M'Call Anderson said they were all indebted to Dr. Middleton for showing the five cases. He fully agreed with the diagnosis of each, and with the treatment, from which much could not be expected, although the two last cases had recovered. He quite agreed that the second last case was due to arsenic. This well-known action of arsenic was rather troublesome at times. In one of his own cases of pernicious anæmia, which was improving under treatment by arsenic, peripheral neuritis set in, and the treatment had to be abandoned. The fifth case was particularly interesting to him, having had the patient in his wards last year. With regard to the fourth case, he thought there were two lesions, on account of the interval of eight weeks between attacks. Another view might be taken of the case—viz., that it is a case of cerebral hæmorrhage, in the lower third of the pons varolii. The third case of bilateral facial paralysis and absolute deafness was strongly suggestive of hereditary syphilis. It is not uncommon to find absolute deafness with hereditary syphilis, and this patient has the characteristic dirty-grey, pasty look, sunken nose, and diseased central incisors.

Professor Macewen desired to express his thanks for the cases shown. He wished to know from Drs. Middleton and

Anderson if there was any irritation of the intestinal canal due to the arsenic.[1] This was the case in Maclagan's cases of poisoning by arsenic, where two or three old ladies had taken sugar contaminated with arsenic. He had had some experience years ago in an important medico-legal case, where some sailors commenced an action against their captain for having supplied them with poisoned food; it was found that the sugar used on board contained arsenic, and all the men were poisoned, and had marked gastro-intestinal irritation. The paralysis that was present remained permanently, and some of the men succumbed. The case of bilateral facial paralysis was interesting, and possibly might be capable of further elucidation, and he should be glad of the opportunity of seeing it again.

Dr. Wallace Anderson was also much interested in the cases. With regard to spastic forms of paralysis, he had, in connection with the Broomhill Home, seen more than his share of cases. A point to note is their differential diagnosis from cases of infantile paralysis. He had noted many of the points of distinction before they appeared in books, such as the conjunction of atrophy and paralysed limbs, persistent reflexes, &c. One great difficulty in dealing with nervous diseases is their nosology as regards different forms of disease and their causes. In some cases we have (1) hydrocephalus with athetosis; (2) epilepsy and athetosis; (3) fits in children, which the mothers ascribe to teething; (4) then there are cases of mental and physical idiocy, meningitis, and hæmorrhage. What are the causes of all these common cases? Then with regard to fibrillar twitching, said to be pathognomonic of muscular atrophy, he had frequently seen it after severe muscular exertion.

Dr. Downie referred to a case which came under his observation in a boy, æt. 17 years, who suffered from total loss of hearing. The transition from dulness to total loss of hearing was sudden. He went to bed rather dull, and awoke in the morning to find hearing absolutely gone. In this case there was, as in Dr. Middleton's, a gumma of the scalp in the left parietal region, with a necrosed area of bone. The gumma broke down, and continuous suppuration caused excavation of a large portion of the temporal bone. The patient had all the marks of inherited syphilis, the central incisors being markedly notched. The mother also had a very marked history of acquired syphilis after marriage.

The boy died, and permission to examine one side only was

[1] There were occasional abdominal pains, but no diarrhœa.

given. At the *post-mortem*, a section of the left temporal bone was made, exposing the external meatus, the tympanum, and the internal auditory meatus. The external meatus and the tympanum were healthy. The inner part of the internal meatus appeared of average calibre, but close to its outer end, approaching the vestibule, the roof suddenly sloped down to meet the floor, and the pressure of this new bony growth appeared to have destroyed the vitality of the auditory nerve, though the facial nerve seemed to be intact. Only a small portion of the horizontal canal, imbedded in dense bone, represented the semicircular canals. The cochlea seemed of normal size, but the bony spiral and lamina were so thickened as to encroach on the cavity.

He also, in reference to Mrs. J.'s case, said that she had been under his care many months ago at the Throat Department of the Western Infirmary. She was then in the early stage of her illness, difficulty in articulation being her chief complaint; her condition being diagnosed as glosso-labio-laryngeal paralysis, she was referred in-doors for treatment, and so passed out of his hands.

Meeting III.—1st November, 1895.

The President, Dr. W. L. Reid, *in the Chair.*

I.—A successful case of excision of the pylorus.

By Dr. Jas. A. Adams.

The following case is worthy of record as being of rare occurrence, and, so far as I can gather, it is the first that has been successful in Scotland.

On 1st July, 1895, I was consulted by Mrs. C. regarding an abdominal growth she had first noticed about six months previously. She stated her age was 55 years, although her emaciated appearance made her look at least fifteen years older. She did not complain of vomiting, but stated she felt constant nausea with disinclination for food. She had lost flesh very rapidly, and was exceedingly feeble.

The growth, which was the size of a small orange, could be moved freely, and the stomach was much dilated.

On 19th July, assisted by Drs. M'Gregor, M'Pherson, and

Findlay, I made a straight central incision three inches long, above the umbilicus, and drew out the growth, which proved to be a carcinomatous tumour of the pylorus. The tumour was not adherent to the other viscera, and I was unable to detect any enlarged glands under the liver or in the vicinity of the lesser omentum or pancreas.

The tumour was dragged well out of the wound, and the abdominal cavity protected with natural sponges wrung out of warm boracic solution. An assistant grasped the stomach and duodenal sides of the growth between his forefinger and thumb, compressing the viscera so as to prevent the escape of the contents. The knife was then passed lightly round the pylorus at a distance of one inch from the edge of the growth, *dividing only peritoneal and muscular coats.* These were reflected about an eighth of an inch in the direction away from the growth, and the mucous membrane divided with scissors as far from the tumour as possible. Immediately prior to division of the mucous membrane the portion to be excised was clamped. Several vessels in the mesentery were ligatured with catgut, and the wound well swabbed with warm boracic solution. The stomach cavity was then flushed out with the same solution, and a few fragments of food removed. The upper portion of the stomach wound was stitched with a continuous catgut Lembert suture until the lumen corresponded to that of the duodenal opening. The assistant grasping the two wounds with forefinger and thumb brought them into apposition, and they were stitched up with a similar suture, which only included the serous and muscular coats. This operation was greatly facilitated by the previous free removal of the mucous membrane from the edges of the wounds. The peritoneum was carefully stitched with catgut on the lesser curvature of the stomach, and a flap of omentum lightly stitched over the gastro-duodenal wound. The abdominal cavity was not flushed, and the parietal wound was closed with buried and superficial stitches. The operation took exactly sixty minutes, and chloroform was used.

For thirty-six hours nothing was administered by the stomach, but the patient was permitted to wash her mouth with warm water and a few drops of brandy. Rectal feeding was commenced at once, two oz. of milk and half an ounce of brandy being given every four hours. From the 19th till the 21st, patient vomited twice, but this ceased after administration of bismuth subnitrate, 10 gr.

On the 22nd, during a period of twelve hours, she had 1 oz. of Valentine's meat juice. On 23rd, 4½ oz. Valentine's meat

juice. On 24th, 7 oz. of raw beef-tea with Valentine's juice. On 25th, 33½ oz. milk, barley-water, beef-tea (raw), and Coleman's wine. From 25th until 30th July, she had an average of 50 oz. of fluid, after which date she was put on ordinary diet.

The bowels moved twice on 25th July, once on 26th, and twice daily until 13th August, when the record was discontinued.

On 30th July, patient became slightly delirious, but the condition immediately ceased on reducing the daily allowance of alcohol.

The parietal wound was dressed fourteen days after operation. The temperature remained normal, except on 3rd August, when it rose to 101·2° F., but fell again in four hours to normal.

The patient was allowed to get up on 21st August, and went to the country on 11th September.

Unfortunately, prior to the operation no record was made of her weight, but she has markedly put on flesh since, and has not had a vestige of nausea, flatulence, or eructation of any kind. Her strength has also greatly increased.

Pathological Report.—The pyloric opening was found to be reduced to the diameter of a No. 10 catheter, and the tumour proved to be a cylinder-celled epithelioma, as will be seen from the following description by John Lindsay Steven, M.D.:—

"The specimens received are apparently sections of the gastro-intestinal wall, not, however, involving its entire thickness, the muscular and peritoneal coats being obviously absent. At one point numerous villi are seen, and immediately below the mucous surface large masses of agminated mucous glands (Brunner's ?). At thee xtremity of the section opposite that in which the villi are seen, a large mass of obviously pathological tissue is made out. On close examination of this, it is found to consist of a groundwork of round corpuscles having all the characters of leucocytes. Embedded in this are numerous epithelial structures, assuming the shape of irregularly shaped tubes and spaces; the type of epithelium is in some places distinctly columnar, and occasionally large cyst-like spaces filled with homogeneous material are seen. All the appearances suggest a cylinder-celled epithelioma, with intense inflammatory reaction accompanying it."

Remarks.—While gastro-enterostomy is an easier operation and less fatal than pylorectomy, and while the immediate effect upon the patient is very striking, it is only palliative, and the longest period that life can be prolonged is about a

year. After complete excision of the pylorus the results are much better. Thus, Wölfler had a case that lived in comfort for $5\frac{1}{4}$ years, and although the glands in the portal fissure were found carcinomatous, the stomach remained free from disease. Rydggier has also reported a case which lived $2\frac{1}{2}$ years, and was entirely free from disease for two years. These cases, however, are excelled by Kocher, who operated $5\frac{1}{2}$ years ago on a lady who is at the present moment in the enjoyment of perfect health. I am indebted to this latter surgeon for an interesting *résumé* of the cases recorded on the continent, and for many valuable hints in his recent work on operative surgery.

It will be noted that I did not use clamps, unless on the excised portion; that continuous sutures were employed; and that catgut was used instead of silk. The mucous membrane was left unstitched. While clamps are strongly recommended by Kocher and other surgeons, and while I might not hesitate to use them where there was difficulty in approximating the incised intestine, I think I have seen paralysis, with consequent delay in healing, induced by their use.

That the continuous suture is alone permissible, I have no doubt whatever, as it is rapidly applied, and is much more likely to induce perfect approximation than the interrupted. I used the ordinary catgut—which I always have prepared in my wards—to resist the action of the tissue for three weeks, and am of opinion that leakage from stitch abscess is less likely to follow with catgut than with silk.

[*10th January, 1896.*—At this date, the enlarged, diseased cervical glands have almost entirely subsided. A number suppurated, burst, and discharged strumous material. Her health is much better since suppuration occurred, and she is steadily gaining weight.]

Dr. Knox congratulated Dr. Adams both on his remarkable success and on being the first to succeed, in Scotland, after many trials. He had listened with interest to the details of the operation, and had no doubt that in similar operations the method adopted by Dr. Adams would remain the classical one.

Dr. Renton rose with pleasure to second Dr. Knox's remarks. This was an admirable case, and the operation was highly satisfactory, quite apart from the survival of the patient. The result was absolutely satisfactory, the pyloric tumour being removed, and the patient making a good recovery. The patient, on interrogation, stated she felt better and happier than she had felt for many months previously. Apparently she was practically well in the meantime. He

should be glad to see the patient say in a year, when it will be of interest to see how time has tested the result. It was to be hoped that the enlarged glands in the neck were not malignant.[1] He agreed with Dr. Adams that pressure by an absolutely reliable assistant was preferable to the use of clamps, as the pressure of the latter might cause some trouble. Clamps never caused him any trouble, but he never had a case of excision of the pylorus. It was always advisable to get rid of mechanical aids in joining the bowel, and in such circumstances the continuous suture was the best, if only knots were placed here and there for greater fixity and security. He was surprised the mucous membrane was not united.

Mr. H. E. Clark had great pleasure, as Dr. Adams's senior colleague, in adding his congratulations. Of recent years it has been customary to recommend the operation of gastro-enterostomy in such cases. It might not be safe to found too much on the results of one operation, yet the successful issue in this case might lead to rehabilitating the operation of pylorectomy. The operation could not be called an essentially curative one, but it certainly staved off the conditions that are the usual accompaniments of pyloric disease. The cases most favourable for operation were, as in this case, those with absence of adhesions to surrounding structures and of glandular implication, and the success of similar operations in the future must largely depend on early diagnosis by the physicians.

Mr. Maylard was pleased to hear of the case. Some time ago he operated on a case, and was partially successful, as the patient lived four days after the operation. Then as regards time, this case was commendable. With Senn's plates or Murphy's button the time could be reduced, but as a stitching operation sixty minutes was certainly remarkable. In his own case the time was between three and four hours, but implicated glands had to be removed. The condition of the patient before operation largely dominated the issue of the case. If cases could be treated before the patient had one leg in the grave, no doubt there would be greater success.

Dr. Newman was sorry the billet was too long to allow adequate discussion of this most interesting case. He quite concurred with Messrs. Clark and Maylard as to the desirability of early diagnosis of pyloric disease. Physicians and surgeons depended on signs of obstruction for their diagnosis of pyloric disease, but there must be earlier stages. Mere pain in the stomach would not justify opening the abdomen. Then, again, you may have a tumour of the pylorus without

[1] *Cf.* note by Dr. Adams on 10th January, 1896.

much obstruction; moreover, a patient can live with complete obstruction; and again, a pyloric tumour may become diminished in bulk by proper treatment, such as feeding by the stomach and rectum, and washing out the stomach. This points to the fact that, in operations on the pylorus, washing out the stomach should be practised, as well as careful rectal feeding. In 15 cases of gastrostomy for stricture of the œsophagus careful feeding gave good results. Continuous suture is rapid, and of the first moment. He had not done the operation himself, but he knew how difficult it was to get the continuous suture tight—*e.g.*, in dealing with the kidney or the duodenum. The success of the continuous suture in this case should encourage its use.

Dr. Adams replied to the various questions, and thanked the members for their welcome appreciation. He was proud of the case because it was done in Glasgow, and most of all because it was done in the old Royal Infirmary.

II.—A PATIENT ON WHOM AN OPERATION FOR THE RADICAL CURE OF A DIRECT INGUINAL HERNIA WAS PERFORMED TWO YEARS AGO.

By Dr. Jas. A. Adams.

T. A., æt. 29, newspaper carrier, was admitted to the Glasgow Royal Infirmary on 13th September, 1893, suffering from a large direct inguinal hernia of sixteen years' duration. At that time (sixteen years ago) he was operated on by Dr. Morton for strangulated inguinal hernia. On his readmission in 1893, there was a large hernial tumour in the right groin, highly tympanitic on percussion and gurgling on palpation, but not reducible. An operation for radical cure was performed on 10th October, 1893. An elliptical portion of skin was removed. The bowel was adherent; it consisted of many feet of the small intestine, and was with difficulty returned. A portion of the sac was cut away, and the remaining portion with the subcutaneous tissues were each stitched with the interrupted suture. The wound extended the entire length of Poupart's ligament.

He was kept two months in bed, to allow the parts to unite firmly, and was dismissed well on 13th December, 1893.

[*27th January, 1896.*—At this date the wound has remained firm, and the hernia has not returned.]

Mr. H. E. Clark had listened carefully to the description of the hernia, and questioned if this was not really a ventral hernia, and due to rupture of the abdominal wall.

III.—CASE OF IMPERFORATE RECTUM—LEFT INGUINAL SIGMOID ANUS, WITH SUBSEQUENT OPENING OF THE RECTAL CANAL.

By Mr. A. E. Maylard.

Abstract of Ward Report taken by Drs. Macharg and Maclennan.—J. B., aged 11 days, was admitted into the Victoria Infirmary, under the care of Mr. Maylard, on 6th May, 1895, suffering from intestinal obstruction.

The mother stated that there had been no action of the bowels since birth. The child would not take the breast, and was fed by a spoon. There had been no vomiting. Enemata had been tried, but they were immediately returned. On admission the child looked pinched and ill; it was very thin, its eyes nearly closed, and pus was exuding from beneath the lids. The abdomen was greatly distended, and on examining the rectum it was found to be imperforate about an inch above the anus.

The child was, without further delay, removed to the operating theatre, where, after the administration of an anæsthetic, an endeavour was made to establish the continuity of the rectal canal. A deep incision carried upwards and backwards towards the sacrum failed, however, to find any communication above. The abdomen was then opened in the left inguinal region, and the sigmoid flexure sought for. It was found much distended, and was brought out of the wound.

At this stage the child looked so ill that it was deemed expedient to open the distended colon at once. This was done, when the escape of a considerable quantity of gas seemed at once to afford relief; the child's breathing immediately appeared less embarrassed, and the patient assumed a much better aspect.

The operation was then completed by stitching the bowel to the parietes, and passing a piece of tubing through the mesentery, to prevent the possibility of any retraction of the loop. To prevent soiling of the parts with fæces, a tube was passed into the upper end of the bowel and secured there, so that fæcal material was conveyed for some short distance into the dressing away from the wound.

The child rallied well, fæces passed freely, and improvement soon became marked.

15th May.—The child seems very well. It is taking plenty of milk, and putting on flesh. The mesenteric tube was removed.

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18th July.—Improvement has continued, and to-day an endeavour was made under chloroform to open up the rectal canal. A steel bougie was inserted at the artificial anus, and was found to pass easily into the upper segment of the rectum. With the finger inserted at the anus, the projecting point of the bougie could be easily felt, and not apparently separated by any considerable depth of tissue. Its position was rather towards the sacral aspect than in the normal line. With the knife the point of the bougie was freely cut down upon, and the latter was made to project at the anus. Securing a long piece of rubber drainage tube to the bougie, the latter was withdrawn, and the tube made to follow. The two ends of the long tube were tied together, so that it was impossible for it to slip out of the rectum.

12th August.—The rubber tube was removed to-day, owing to it causing some purulent discharge to exude from both the natural and the artificial anus. The child is in good health.

From this date on to the present (1st November) bougies have been passed every alternate day. But for such dilatation the rectum at its imperforate point rapidly shows signs of contraction.

The child passes its fæces freely through the artificial anus, and the careful attention of the nurses has prevented anything like troublesome skin irritation around the fæcal orifice. The child is in good health, eats and sleeps well, but the pelvis appears to lack somewhat in development.

Remarks.—Successful cases of colotomy for imperforate rectum are rare, and rarer still is the subsequent opening of the canal; rarest of all, however, will be the result, if we can close the artificial anus, and so direct the fæces to pass *per vias naturales.* I must confess that the grave fear I have of being unable to complete the third stage of the operation has tempted me to present the case before you at this stage. The seriousness of attempting enterectomy in a child so young reasonably raises the question of attempting it all. It will be years before the child is likely to be troubled by the knowledge of its abnormal condition and the inconveniences connected with it. But there are already indications of deficiency of development of the pelvis, and I venture to think that, so long as there lacks the normal distending force which a loaded rectum affords or excites, so is it only too likely that this failure in growth may create, as years pass on, more serious difficulties in other functions connected with this portion of the trunk.

This question of leaving matters as they are or proceeding further, together with the more cogent question of what to do, if something is to be done, affords scope for discussion, which I trust, for my own enlightenment and guidance, will be freely indulged in by surgeons present.

[Since this patient was shown to the Society, she contracted scarlet fever and was removed to Belvidere Hospital, where she died.]

Mr. H. E. Clark said this was a case of imperforate rectum where the condition depended on an arrest in the formation of the pelvic portion of the alimentary canal. The most hopeful of such cases were those in which it was possible to reach the bowel by an incision beside the coccyx. Colotomy did not, as a rule, prove so successful as in Mr. Maylard's case. The modern method of performing inguinal colotomy, by which a loop of bowel was brought out through the wound and retained by a glass rod, was not so well adapted for cases of imperforate rectum as the old one. In the latter, where only the side of the bowel was stitched to the wound and opened, the artificial anus not unfrequently closed when a perineal opening was established, but in the new method this spontaneous cure was quite impossible, and nothing less than resection of the bowel would suffice to re-establish the canal. He acknowledged the risks of resection in so young a child, but thought it was necessary to face them in this case, and recommended that within six months the operation should be done.

Dr. Renton thought this might be a case where Dupuytren's clamp might be put on to get rid of the spur and close the artificial anus. It might be less dangerous to the child than enterectomy.

IV.—A CASE OF TREPHINING FOR INTRA-CRANIAL HÆMORRHAGE CAUSING LOCALISED SYMPTOMS.

By Mr. A. E. Maylard.

Abstract of Ward Report taken by Dr. Maclennan.—R. K., aged 9 years, was admitted into the Victoria Infirmary, under the care of Mr. Maylard, on 20th September, 1895. He had fallen over a bannister while sliding down, and had dropped about 30 feet.

On admission he was in a semi-conscious condition, could be roused slightly, and lifted up his arms when told to do so;

the right, however, appeared considerably weaker than the left. He could move both legs. There was very slight facial paralysis on the right side. The abdominal and cremasteric reflexes on the right side were much more active than on the left, but the plantar appeared equal on both sides. The right pupil was a little more dilated than the left. On the head were four swellings, due evidently to collections of blood. The largest was situated above the left ear, a second above the right ear, a third near the vertex, and the fourth in the occipital region. There was retention of urine.

21st-23rd September.—He remains in much the same condition.

24th September.—The patient has had two fits this morning. The first lasted a quarter of an hour, and consisted of twitchings of the right side of the face and the left leg. In about three hours after the first attack a repetition of the fit occurred. The leg was in spasm for only a quarter of an hour, but the face continued to twitch for about two hours.

25th September.—This afternoon he had a return of the facial spasm. It was clonic; the frontales muscles were implicated, and also the orbiculares palpebrarum, the right one being the more severely contracted. The eyes were turned to the right, and there was some horizontal nystagmus. Occasionally the left leg moved spasmodically.

26th September.—It is observed this morning that the muscles of the trunk on the right side are implicated. The muscles on the right side of the neck are also affected, so that the head and trunk are spasmodically jerked to the right side. In the evening there were regular clonic spasms of both eyelids and the muscles of the right face. There was complete paralysis of the right upper extremity, but the right leg could be moved voluntarily. There were no spasms of the left leg. This fit lasted for some hours, the spasms commencing slowly, but gradually increasing in frequency. He was quite conscious.

27th September.—Chloroform was administered, and Mr. Maylard, assisted by Dr. Andrew, removed a disc of bone by the trephine from over the cortical arm area on the left side of the skull. Immediately on removal of the disc, black blood-clot was seen, about one-eighth of an inch in thickness. The clot extended downwards between the dura and the bone. The clot was easily scraped away with the director, and altogether did not consist of more than could have been placed upon a halfpenny. Subdural tension appeared considerable,

as on puncturing the dura mater a jet of cerebro-spinal fluid was forcibly ejected. The dura mater was divided by a small crucial incision, but the brain beneath appeared quite healthy. The disc of bone was replaced and the wound closed.

28th September.—There have been no fits, and there is some movement of the right arm.

6th October.—No fits since the operation. He can now use his right arm. There is still some paresis of the right side of the face.

11th October.—Stitches removed; wound nearly healed.

17th October.—The wound is quite healed, and the boy is free from all signs of paralysis and spasm.

25th October.—Left the Infirmary quite well.

Remarks.—The most marked nerve symptom was the paralysis of the right arm, and this did not appear until some days after the accident. It proved the true guide in trephining, and led to an exact localisation of the lesion. The face was the part most severely and constantly affected with spasm, and this equally led to a successful search for any source of irritation over the face centre, as on passing the director in a direction downwards from the arm centre, clots of blood were found, which could be easily scooped away.

The amount of blood removed was small, but, added to the amount of tension which appeared to exist within the dura mater, it seems to have been sufficient to cause pressure and irritate the arm and face cortical areas, as well as some of the more distant centres.

That the left orbicular and palpebral muscles contracted synchronously with the right is explained by the normally associated movements of these parts; but why the left leg should have been spasmodically affected at the same time that the right side of the face was being contracted is, I think, not quite so easy to understand.

The case seems chiefly of interest from two points—(1) the limited character of the lesion, the lateness of its appearance, and the localised symptoms to which it gave rise; and (2) the exactness by which, through the aid of cerebral localisation, it was possible to successfully treat the case.

Meeting IV.—22nd November, 1895.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Gumma of the Iris.

By Dr. Rowan.

Dr. Rowan showed a patient with gumma of the iris.

II.—A Syphilitic Family History.

By Dr. C. O. Hawthorne.

The three individuals[1] who form the subject of this communication are the only surviving members of the family to which they belong. The father has been dead for many years, and the mother died a few months ago. No history of any event suggesting specific disease in either parent could be obtained, though the inherited taint is prominently displayed in their children. The family record, as obtained from the mother, is as follows:—

First pregnancy.—A girl, born at full time, eighteen months after marriage, and now 25 years of age. Has always enjoyed good health, with the exception that two years ago she suffered from "a mist over her eyes" for two months and was in consequence unable to continue her occupation as a domestic servant. There are now distinct evidences of a former interstitial keratitis, which, in the left cornea, has left a small but distinct opaque spot. The teeth are distinctive. The upper central incisors are fairly well-shaped, but are separated by a slight interval, and each presents an extremely well-marked notch along its free edge. No other evidence of syphilis.

Second pregnancy.—A male child, born at full time, but died on the ninth day from "water in the head."

Third pregnancy.—A male child, born at full time, but died when 18 months old, also from "water in the head."

Fourth pregnancy.—Miscarried at fourth month.

Fifth pregnancy.—Male, still surviving, æt. 18 years. General health has always been poor. There are characteristic teeth, periosteal thickenings, an enlarged spleen, and prominent frontal eminences, with other symptoms alluded to in the sequel.

[1] The patients were shown to the Society.

Sixth pregnancy.—Male, still surviving, æt. 17 years. A strong and vigorous youth, free from all evidences of inherited taint, and with a general robust appearance which makes him contrast very favourably with his weakly-looking brother. The upper central incisors are well formed, but are placed in the jaw in a peculiar fashion, each having, as it were, been rotated on its long axis, so that a considerable interval is left between them, and their anterior surfaces look directly outwards, the posterior surfaces facing one another. It is of course to be remembered that this lad is not yet free from all risk, as is indicated by the postponement of interstitial keratitis in the case of his sister until she had reached the age of 23 years.

Seventh pregnancy.—A male, still-born at full time, two years after the birth of the last mentioned.

The most interesting features in the above statement are those which indicate the degree of action of the syphilitic poison in the various chapters of the family history. And the action of the poison, it will be observed, has been very irregular. Thus, to take only the surviving members of the family, the first pregnancy issues in a healthy girl, in whom the evidences of inherited taint are confined to interstitial keratitis and malformation of the permanent incisors, whilst the boy, born seven years later, presents wide-spread characteristics of severe inherited syphilis and marked depreciation of his general health, and he is succeeded by a lad on whom apparently the specific poison has not been able to exert any injurious influence. And if we accept the presumption that the unfortunate incidents with regard to the other pregnancies were due to syphilis, this irregularity in the action of the virus is still further emphasised, more especially in the issue of the seventh pregnancy in a still-born child following the birth of the one member of the family whose escape has apparently been complete. Such a series of events is in direct conflict with the generally accepted view that it is invariably the products of the earlier pregnancies which suffer most severely in a syphilitic family, and that gradually the influence of the poison becomes diluted, until at last it dies out entirely. No doubt the general rule is as here stated; but that there are striking exceptions to the rule has been pointed out by Mr. Hutchinson,[1] and the present record agrees with his teaching.

The case of the elder boy has features of interest apart from its relation to the general family history. He first came under

[1] Hutchinson, *Syphilis*, p. 70.

observation when 14 years of age, at which time he had been complaining for eighteen months or more of attacks of frontal headache, associated with feverish phenomena, *i. e.*, a sensation of chilliness, followed by burning heat of the skin, and subsequently sweating. According to the mother's statement the urine on these occasions was at times "thick, like coffee," at other times "red, like blood," whilst between the febrile attacks it was natural in colour and quite clear. In short, the account of the symptoms directly suggested the existence of paroxysmal hæmoglobinuria. The lad was very distinctly anæmic, with a sallow tint of the skin, and presented the signs of inherited specific disease already described. The blood, except for evidences of anæmia, was normal. Though he remained under observation for some weeks, none of the attacks described by the mother occurred until, on one occasion, after being out of doors for some time, he complained of feeling cold, and the temperature rose to 103°, the normal point being regained in the course of a few hours, and the fall accompanied by free sweating. On this occasion, and also on two or three other occasions, there was "slight" albumen in the urine, but the presence of blood was never detected. The single observed febrile attack was in exact correspondence with those mild attacks of paroxysmal hæmoglobinuria described by Bristowe,[1] Hilton Fagge,[2] and Grainger Stewart.[3] Though the evidence, in consequence of the non-occurrence of hæmoglobinuria whilst under observation, is not quite complete, the history, as given by the mother, and the febrile event and occasional albuminuria just described, appear to make it at least extremely probable that the boy must be regarded as the subject of a paroxysmal hæmoglobinuria, or at least of a paroxysmal albuminuria, which may possibly result from decomposition of hæmoglobin.[4] This aspect of the case is of extreme interest, in view of the occasional occurrence of hæmoglobinuria as a result of acquired syphilis. Jaksch[5] states that this is a frequent event in severe cases of syphilis, and a very marked case has been described by Koster.[6] Quite recently Churton[7] has had experience of the

[1] Bristowe, *The Theory and Practice of Medicine* (seventh edition), p. 884.

[2] Fagge, *The Principles and Practice of Medicine* (second edition), vol. ii, p. 589.

[3] Grainger Stewart, *Quain's Dictionary of Medicine* (first edition), p. 564.

[4] Taylor, *Practice of Medicine* (fourth edition), p. 815.

[5] V. Jaksch, *Clinical Diagnosis*, p. 272.

[6] Koster, *British Medical Journal*, "Epitome of Current Literature," 13th May, 1893.

[7] Churton, *British Medical Journal*, 16th November, 1895, p. 1239.

same association. In all these, however, the syphilis had been acquired, but Lawford Knaggs[1] has recorded one case of a child, the subject of inherited syphilis, in whom hæmoglobinuria appeared some five years after the undoubtedly specific phenomena. To judge from the very scanty references to the subject, it would seem that paroxysmal hæmoglobinuria must be a very unusual occurrence in inherited syphilis, and hence it appears desirable to place the present case on record.

Dr. Toward said that the patient with little or no signs of inherited syphilis had a peculiar arrangement of the upper teeth—the upper incisors being crowded together, this being probably due to imperfect development of the inter-maxillary bone. He thought, also, one of the temporary molars still persisted, although the patient was 18 years old.

Mr. H. E. Clark said, in discussing these cases, it was important to know which parent was primarily infected, and the time which elapsed between the infection and marriage. In his opinion, the female patient shown presented more characteristics of hereditary syphilis than Dr. Hawthorne spoke of, but there was no doubt that she had fewer indications than the boy who was born later. The teeth showed characteristic notching, they were small in size, and rounded at the angles.

Dr. W. L. Reid said in these cases it was usual to find the first child most affected, and alleviation following under the curative influence of time.

III.—APROSEXIA, CONVULSIONS, AND ADENITIS DEPENDENT ON PATHOLOGICAL CHANGES IN THE FAUCIAL, LINGUAL, AND PHARYNGEAL TONSILS.

By Dr. Walker Downie.

Of late years, medical periodical literature has contained numerous articles on post-nasal adenoids and the lingual tonsil, and the average reader, eager for instruction, rather than amusement, must have concluded, after their perusal, that in hypertrophy of the pharyngeal and lingual glands was to be found the primary cause of almost every form of ill-health. Far short of such an extreme, however, there are many most important facts associated with the presence of enlargement of the gland tissue distributed over the pharyngeal wall

[1] Lawford Knaggs, *British Medical Journal*, 16th November, 1895, p. 1239.

and the base of the tongue, worthy of the serious consideration of the medical profession generally.

To fully appreciate the significance of many of the pathological changes which occur, and particularly those to be spoken of to-night, as well as the symptoms to which they give rise, it will be of advantage to enquire, in the first place, into the nature and physiological position in the economy of the various tonsils.

Situated between the faucial pillars on each side is an aggregation of compound follicular glands, known to all as *the* tonsils. These from time immemorial have been recognised as structures which, in certain individuals, called for the frequent attention of the medical practitioner, though considerable uncertainty existed regarding their function.

In addition to those tonsils there are other collections of gland tissue of very similar structure, situated on the posterior aspect of the tongue, and on the walls and roof of the naso-pharynx. The presence of this tonsillar tissue in those localities has long been recognised by anatomists, though physiologists have said little of it but what was conjectural, and surgeons, until lately, went a step further and ignored it.

The mucosa of the naso-pharynx is infiltrated with diffuse adenoid tissue along with many lymphoid follicles. In the middle line, and near the vault of the pharynx, there is a collection of this lymphoid tissue forming a more or less prominent irregular mass, known as Luschka's or the pharyngeal tonsil.

Again, over that portion of the tongue posterior to the line of the circumvallate papillæ, the region called by Wingrave the "pharyngo-glossus," there is a large supply of retiform or lymphoid tissue. This, loosely imbedded in the sub-mucous tissue, is at numerous points collected into dense nodular masses to form follicular glands or lymphoid follicles, the aggregation of which is now frequently referred to as the lingual tonsil.

The part which the faucial tonsils play in the economy has been variously described. Earlier investigators considered that, previous to birth, they lay in contact, and so closed the pharyngeal cavity against the entrance of amnionic fluid; while later physiologists looked upon them as glands for the secretion of fluid to lubricate the bolus of food on its way to the gullet. More careful examination, however, has shown that the tonsils, in a state of health, have a much more important *rôle* than is implied in either of those statements.

Tonsils are structurally similar to ordinary lymphatic

glands, though their covering and immediate surroundings differ from such glands.

An ordinary lymphatic gland is situated in the course of a lymph-stream, and is in free communication with absorbent lymphatic vessels which bring the necessary supplies to the gland for the manufacture of leucocytes, which in turn pass from the gland by an efferent vessel to enter the general circulation.

The faucial tonsils, on the other hand, are superficial and isolated; and though they have no large afferent vessel such as the typical lymphatic gland possesses, there are numerous small lymphatic vessels which gather in the fluids absorbed by the buccal and faucial mucous membrane in the immediate neighbourhood of the tonsils, and these pass into the tonsil and may be considered to take the place of the main vessel of the typical lymphatic gland.

Then, again, although lymphatics communicating with large lymph spaces close by, exist in the neighbourhood of the faucial tonsils, yet no connection has yet been traced between these lymphatics or the lymph spaces and the tonsils or their follicles. Thus there is no efferent lymphatic vessel to be found, and yet these tonsils undoubtedly manufacture leucocytes. The leucocytes formed here pass out of the tonsils in large numbers, and may be found over the surface or in the crypts. They pass out along with the somewhat viscid tonsillar secretion, a fluid which is endowed with highly amylolytic properties, to mix with and very possibly to aid in the digestion of the bolus and go with it to the stomach.

In connection with this point, it may be interesting to draw attention to the fact that children, in whom in a state of health leucocyte-forming glands are most active, are frequently, when the tonsils are hypertrophied, the subject of digestive disturbances, possibly from alterations in the nature of the tonsillar secretion.

Unlike the faucial tonsils, the lingual and pharyngeal tonsils have a free lymphatic connection.

The lymphatics communicating with the gland tissue at the base of the tongue are mainly directed backwards, and after passing through some of the small lingual glands join the deep cervical glands in the neighbourhood of the bifurcation of the common carotid artery.

Again, the lymphatics connected with the covering mucous membrane of, and with the gland tissue in the pharynx, are abundant. Those from the upper part of the cavity are joined by lymphatic vessels from the nose and the superior part of the soft palate, and pass backwards to a gland

near the skull between the pharynx and the prevertebral muscles. The lymphatics from the lower part of the pharynx pass out with the superior laryngeal lymphatic vessels, and enter the glands about the bifurcation of the common carotid artery.

The first important point in which those structures differ from each other, is that the faucial tonsils have no direct communication with the general lymphatic system, while the pharyngeal and lingual tonsils have a very distinct, and in the case of the latter, a very free lymphatic connection.

The importance of this anatomical difference is great, and is manifested in the consequences following absorption of irritant or poisonous materials.

In health some of the products of salivary digestion, as well as excessive buccal, nasal, and pharyngeal secretions, are absorbed by these compound glands. What the faucial tonsils absorb they absorb for their own purposes, and should poisonous products be taken up they rarely go further, but are here destroyed. Thus, in addition to their leucocyte-forming function, the faucial tonsils may be looked upon as destructors of material inimical to the well-being of the organism.

What is absorbed by the pharyngeal and the lingual gland tissue passes readily into the general lymph stream; and should the fluids absorbed contain any products of decomposition or other poisonous material, or germs of disease, these are apt to be passed on *viâ* the lymph stream to the nearest lymphatic glands.

Hypertrophy of those gland structures is the pathological condition most frequently brought to our notice, but while hypertrophy of the faucial and pharyngeal tonsils is commonly met with in children, hypertrophy of the lingual tonsil is rare in children. The latter usually occurs in young adult life when the pharyngeal tonsil is beginning to undergo spontaneous degeneration. The primary symptoms associated with hypertrophy of the faucial, pharyngeal, and lingual tonsils are for the most part dependent on obstruction, and may be summed up as interference with respiration; difficulties in deglutition; impairment of hearing; and changes in speech; all of which are well known to, and have been observed by every doctor here.

Other secondary changes follow in time, those most widely known being imperfect development of the chest; absence of facial expression, or the features assuming a cast denoting stupidity; and impaired cerebration.

To-night I wish to speak in detail of the last-mentioned, as well as of certain reflex phenomena and of adenitis, which may occur as the result of pathological changes in the gland tissue under consideration, and which have not always that attention paid to them which their importance deserves.

Guye, of Amsterdam, first called attention to the impairment of the cerebral function due to disorders of the nose and naso-pharynx. He found that headache was frequently the result of nasal obstruction, and next in frequency from the same cause was the inability to fix the attention on any more or less abstract subject. This latter condition or symptom he called aprosexia. His explanation of this cerebral symptom of exhaustion as resulting from nasal disorders is as follows:—"Cerebral exhaustion must be the consequence of one of two causes, either the nutrient matter which has to repair the loss produced by the function of the brain is not yet sufficiently procured or assimilated, or the products of the 'tissue-change' which have to be eliminated are incompletely removed. This removal will, according to physiological principles, have to take place partly at least by means of the lymph vessels; and in this respect we must point to the fact found by Axel-Key and Retzius, that large lymph vessels leave the cerebral cavity together with the fibres of the olfactory nerve. It is highly probable that structural changes in the nasal mucous membrane, and especially such as will exert pressure on the lymphatics, will impair or prevent the current of the cerebral lymph through the nasal mucous membrane. The retention of the products of the chemical processes in the tissues of the brain will lead to results which we may expect to be the same as those of physiological exhaustion, that is, of fatigue."

I have already alluded to the vacant appearance of the face in those the subjects of post-nasal adenoids, who are of necessity "mouth-breathers," but in addition to the look of stupidity which they wear, the children are usually stupid and backward in everything calling for mental effort, and aprosexia is a marked feature in most cases. Ferrier says that intelligence is proportionate to the development of attention, and it is also proportionate to the development of the frontal lobes. The frontal lobes are imperfectly developed in idiots, whose power of attention is very weak; and removal of the frontal lobes does not induce motor paralysis, but merely mental degeneration resulting in loss of attention. Now, anything interfering with the due nourishment of the

frontal lobes will interfere with their function, and Guye's theory regarding the mechanical obstruction to the exit of waste material from the frontal region of the brain may, as it is the simplest, be also the true explanation. Where, however, this mechanical obstruction, causing lymph-stasis, has existed for years, would we not expect organic changes in the brain to result? Reasoning from symptoms we must conclude that this does not occur, for almost immediately after the complete removal of post-nasal adenoids, even in cases of some years' standing, aprosexia becomes a thing of the past. In illustration of this important fact, one of Dr. Guye's own cases, the first in his original communication, may be quoted. "On examination I found complete nasal obstruction, and the boy, who had been to school for a year, had not been able to learn more than the first three letters of the alphabet. I removed a mass of adenoid tumours from the naso-pharyngeal cavity, and when his father brought him again, a week later, he told me that his son had learned the whole alphabet in that week."

During a recent conversation on this subject, Dr. Fraser of Paisley directed my attention to a psychologist's explanation of the mouth-breather's inability to fix his attention, referring me specially to Ribot's monograph on the "Psychology of Attention." The general mechanism of attention is motory, and in the particular case of voluntary attention it chiefly consists of an action of inhibition. Everyone knows by experience that voluntary attention is always accompanied by a feeling of effort, which bears a direct proportion to the duration of the state and the difficulty of maintaining it. If this feeling of effort be carefully analysed, it will be found that it coincides with a fixation of the muscles of the chest, a closure of the glottis, and an active contraction of the muscles of respiration. During voluntary attention, which is a momentary state of the mind, respiration is suppressed or inhibited. Where, however, respiratory difficulties are present, the ability to fix the attention is difficult or impossible, according to the degree of obstruction, because there is not that reserve of air in the lungs, necessary for purposes of the economy, to permit of a period of inhibition or short cessation of the respiratory act. The removal of the post-nasal obstruction, by permitting of free respiration, renders the inhibitory action, necessary to voluntary attention, possible.

Much more might be said from the psychologist's standpoint, but if I have made clear the mechanism of voluntary attention, and how it becomes impossible when the nares are obstructed, I have said enough. Guye's theory is that which is generally

accepted, but if interference with the lymphatic circulation was wholly responsible for this symptom, it should, reasoning from the results of lymph-stasis seen elsewhere, result in organic changes, which, as has been said, do not appear to occur even in cases of long standing. From the rapidity with which the power to give attention returns after the respiratory tract has been made free, I am inclined to consider the psychological explanation as the more important.

During the past twelve months I have seen, with some of my colleagues at the Western Infirmary and the Royal Hospital for Sick Children, in all ten children the subjects of epileptiform seizures, each of whom had hypertrophy of the pharyngeal tonsil, with, in some of the cases, hypertrophy of the lingual tonsil as well. Their ages ranged from nine to fourteen years, they all had become subject to the attacks within a few months only of their appearance at Hospital, and in the majority of cases the attacks occurred at night. There is not time to permit of details being given to-night, but I may say that of four cases operated upon, one has had no seizure since—now an interval of some months; another has had one seizure only within two months, while formerly she had several each week. Of the other two who were quite recently operated upon, one now breathes quietly and easily during sleep, and the mother thinks the fits are less frequent and of shorter duration, and the fourth has not reported herself since operation.

The mechanism of an epileptic seizure was described by Marshall Hall as consisting of two processes. There is the excitation of a sensory nerve, or direct central excitation, which gives rise *first* to reflex spasm of the muscles of the neck causing compression of the cervical veins with consequent comatose symptoms, and *secondly* to a reflex tonic spasm of the muscles of the larynx closing the rima glottides (laryngismus), and causing asphyxia with consequent convulsions. In other words, the condition of unconsciousness is ascribed to venous engorgement, and the convulsions to general asphyxia. Kussmaul and Tenner, however, in their investigations concerning the pathology of epilepsy, showed that occlusion of the larynx alone is capable of producing coma and convulsions, and consequently they refuse to accept the first portion of Marshall Hall's theory.

Quite recently I had an interesting demonstration of this mechanism—a convulsive seizure caused by a sudden obstruction of the windpipe. The patient was a child, 3 years old,

on whom I had performed thyrotomy for the removal of numerous papillomatous growths some time previously. On the occasion in question, chloroform was being administered by Dr. Hay, House Surgeon, Royal Hospital for Sick Children, preparatory to the withdrawal of the tube and closure of the wound in the larynx and trachea. The tube had been removed, the child was fairly deeply under chloroform, when respiration ceased, his lips gradually became livid, the eyeballs turned upwards, the head turned in a jerky fashion towards the left, the muscles of the face and limbs became rigid (tonic spasm), and appearances pointed to the imminence of general convulsions. The tracheal tube was then reintroduced. Immediately on its introduction, a quantity of tough mucus, which had very thoroughly blocked the trachea, was expelled, and the twitchings of the head and rigidity of the muscles at once ceased, and the lividity quickly disappeared.

Now, Sir B. W. Richardson, in the *Asclepiad* (1887), refers to a case closely allied to those under discussion, the recounting of which may assist in making clear the contention that the epileptiform seizure in several such cases is the result of new growths in the pharyngo-nasal space. The patient, a lady, was the subject of epileptic attacks caused by a large mucous polypus in the post-nasal space, the removal of which terminated the seizures. It had given rise to none of the usual signs of obstruction, and had been wholly overlooked by the medical gentlemen consulted by the patient. She stated that the seizures were preceded by something dropping into the larynx, resulting in a feeling of something having gone down the wrong way. This was, no doubt, fluid exuding from the polypus dropping into the larynx, the foreign intrusion giving rise to spasm and asphyxia.

Where the naso-pharynx is occupied by hypertrophied gland tissue, the secretion is excessive, and is frequently retained in considerable quantities in the post-nasal space, from which it may suddenly escape on change of position of the patient. In its descent it might readily produce spasm of the larynx, and this would be more readily followed by general convulsions in a child so affected, than in one whose upper respiratory tract is free, on account of the constant inefficient aeration of the blood in the former.

A graphic description of the seizure and the method of its relief was given to me by the mother of one of these cases, a child, aged 10, under the care of Dr. R. M. Buchanan. Within a few minutes, she said, of the child putting her head on the pillow at night, she has a seizure, the symptoms

of which are stiffening and stretching of arms and legs, slight twitching of the head, which gradually becomes bent forwards, accompanied by a gradually increasing lividity of the face. The child fears to go to bed on account of these seizures, and yet, if anyone is near, the attack may be checked by pouring some cold water into her mouth. As soon as the cold water enters the mouth she takes a long inspiration and she awakes —the spasm of the glottis apparently being overcome by the stimulus of the cold so applied.

Where the lingual tonsil is hypertrophied, and lies, as it frequently does, in contact with the anterior aspect of the epiglottis—"imprisonment of the epiglottis"—the liability to such seizures is, I think, increased.

And, lastly, I desire to draw your attention to-night to the association of enlarged glands in the neck with pathological changes in the gland tissue in the buccal and pharyngeal cavities.

As a result of my own experience, I would assert that hypertrophy of the faucial, lingual, and pharyngeal tonsils may exist, and may be so pronounced as to give rise to those symptoms dependent on obstruction in the upper respiratory tract, without any neighbouring glands being affected. But, on the other hand, where there is enlargement of the submaxillary and cervical glands in children and in young adults, distinct swelling of the tonsillar tissue in the naso-pharynx and at the base of the tongue will be found in the majority.

From the former of these statements we may reason that hypertrophy *per se* does not necessarily cause swelling of the associated lymphatic glands. But hypertrophy predisposes to conditions which lead up to inflammation of the lymphatic glands communicating with these regions. The surface of the hypertrophied tissue is rough and irregular, presenting pits and prominences, and these surface irregularities favour the retention of particles of food and buccal and nasal secretions, along with foreign substances and numerous micro-organisms in the neighbourhood of highly absorbent tissue by which these deleterious materials are readily taken up and passed on to the nearest lymphatic glands.

From the description I gave of the isolated position of the faucial tonsils, you will readily believe me when I say that we rarely, if ever, have enlargement of the neighbouring lymphatic glands dependent on affections of those tonsils. The faucial tonsils may be highly inflamed, they may have been inoculated with septic material, or they may be the site

of malignant disease (primary) for a considerable time without there being any affection of the cervical or submaxillary glands as a consequence.

Absorption from the base of the tongue, on the other hand, takes place most readily; and if the material absorbed is contaminated with irritants or pathogenic micro-organisms, their absorption is manifested by enlargement of the glands near the bifurcation of the carotid. Inflammation of the dorsum of the tongue, such as may follow on the prick of a fish bone, or which may result from the presence of irritating or decomposing materials lodged in the hollows on the dorsum, is quickly followed by inflammation of those glands; and the remote results in each case will depend largely on the nature of the material absorbed.

The gland tissue in the naso-pharyngeal cavity occupies an intermediate position, absorption of foreign matters taking place much less readily from this surface than from the surface of the tongue. In great part, this might be explained by position—the pharyngeal gland tissue being less exposed to contact with materials introduced from without; and the pharyngeal surface being on the perpendicular, substances when present, and which, if retained on the surface, might be absorbed to the detriment of the lymphatic glands, have not here the facilities for lodgment presented over the surface of the pharyngo-glossus.

Tubercular affections of the tongue, the fauces, and the pharynx are comparatively rare, and yet the tubercular bacillus, dust borne or otherwise introduced, may be found on the surface of those parts in many individuals. Further, in a not inconsiderable number of cases, as has been reported by several observers, and recently by Dr. Nicoll, tubercle bacilli may be found embedded in the substance of the adenoid tissue, where neither macroscopically nor microscopically could other evidences of tubercular disease be detected. The absorbent gland tissue, over the tongue and in the naso-pharynx, in the performance of its normal function may take up such micro-organisms; and in this way tubercular affections of the lymphatic glands in communication with these regions may occur in those who, as far as can be ascertained, are free from inherited tubercular tendencies, as well as in those of "scrofulous diathesis."

In all cases where the glands in the neck are enlarged, whether the swellings are painful or otherwise (acute or chronic enlargement), the condition of that part of the tongue posterior to the line of the circumvallate papillæ should be

specially observed, and if any condition exists favouring the retention of secretions or foreign material, it should be as far as possible removed and the surface made healthy. When roughness due to increase in the bulk of the lingual tonsil exists, there will also in all probability be hypertrophy of the naso-pharyngeal adenoid tissue, making its presence known particularly, by interference with nasal respiration, or by implicating hearing. But whether those grosser symptoms be present or not, this tissue should be thoroughly removed as soon as its presence is detected.

The tongue should in all those cases be so treated as to render its surface clean, firm, and healthy; and the naso-pharynx, so that a perfectly smooth surface will result.

Dr. R. M. Buchanan said he had made some observations on a series of cases of epilepsy in boys and girls, both at the Children's Hospital and the Western Infirmary. The average age of the children was 10 years, and they suffered from an excessive amount of adenoid tissue in the nose and pharynx. As there was some reason to suppose that this condition was a possible etiological factor in the production of the fits, Dr. Downie was asked to treat the patients, and the treatment was followed by satisfactory results.

Dr. Newman said the communication made to the Society was one of considerable interest from a pathological standpoint, and one of great importance clinically. Every general practitioner was constantly coming across cases of hypertrophy of the pharyngeal tonsil, but the condition was not always recognised in the early stage, and the morbid process was allowed to develop until serious symptoms, such as asthma, deformity of the chest, severe headaches, alterations in the voice, or interference with hearing, showed only too clearly that the adenoid tissue was increasing rapidly in bulk. Since the days of William Hunter the existence of adenoid tissue in the pharyngeal vault had been recognised, but the morbid development of that lymphoid structure, and the consequences of its presence, had not been fully realised till Meyer, of Copenhagen, published his classical paper on the subject.

The most characteristic symptom of the disease was the peculiar facial expression, most noticeable in young children, and when well marked was sufficient for a diagnosis. And undoubtedly, of all the many consequences resulting from hypertrophy of the pharyngeal tonsil, the most serious and persistent were the ear-complications—indeed, it might safely be said that in the majority of cases of ear trouble in young

children the deafness is caused by adenoids. Nasal obstruction, causing mouth-breathing, was also a serious danger to health. The nose was apt to be looked upon as a very simple organ, but this was not so. Not only does it preside over the sense of smell, and give certain resonance to the voice, but it also has very important functions to perform in connection with respiration. When the nostrils become diseased or are obstructed from any cause, not only is the lower respiratory tract injured, but the individual is rendered more liable to infective material introduced by inspired air. It may be safely asserted that almost the whole of the water which is expired by a healthy person is taken from the nasal passages, and not from the trachea or lungs, so, when the nostrils are obstructed, the lower air-passages, in place of receiving clean, warm air, fully charged with watery vapour, the air is almost at the temperature and humidity of the atmosphere, which also has not been freed from its floating particles. In this way the more vulnerable portions of the air-passages—the larynx, trachea, bronchi, and lungs—are exposed to disease.

In the latter portion of his paper Dr. Downie called the attention of the Society to the circumstance that adenitis involving the glands in the neck was frequently associated with morbid changes in the pharyngeal and lingual tonsils, and he believed the adenitis to be due to the absorption of micro-organisms or their products by the diseased adenoid tissue in the pharynx or in the mouth, as a result of their own morbid condition. Dr. Newman did not agree with the position taken up by Dr. Downie, although he was quite willing to admit the circumstance that in cases of hypertrophy of the adenoid tissues the interference with health was very great, and apparently out of proportion to the morbid process observed. Dr. Newman thought that the infection of glands in the neck was not due so much to the morbid changes in the adenoid tissue leading to undue absorption as to the circumstance that nasal obstruction prevented the proper filtration process and the destruction of organisms in the inspired air. It was well known that air in the lower air-passages, or even in the larynx when the patient breathed through the nostrils, was perfectly free from micro-organisms. He had found, for example, that the mucus from the trachea of a healthy animal was quite sterile, and it was a well known fact that in cases of hæmorrhagic infarction of the lungs the blood which fills the air-spaces, and which must have come in contact with the air in the alveoli, may remain sterile for any length of time. He had no doubt that in health the nasal

mucous membrane, and the mucus secreted by it, had a power of arresting or of destroying the germs of infection; but when the nostrils became the seat of disease, then the adenoid structures were brought in contact with infective material, which they absorbed.

Epileptiform seizures in children were not uncommonly associated with hypertrophy of the pharyngeal tonsil. Dr. Newman had seen several instances of this, but had not come to any conclusion as to their relationship to one another.

Aprosexia, or the want of ability to concentrate the mind on a subject for a length of time, is a symptom not limited to cases of adenoid hypertrophy, and although coincident with it, as in Guye's case and in those brought forward by Dr. Downie, the relationship of cause and effect is not yet clear. In almost all cases of marked nasal obstruction the mental or other cerebral conditions are interfered with more or less at times. J. A. M'Bride has recorded a case of psychical epilepsy; instances of chorea, neurasthenia, and various forms of reflex, spasmodic, and other diseases of the nervous system have been found associated with, and cured by the removal of, hypertrophied adenoid tissue, but the cases recorded are as yet too few to permit us to give or accept an explanation. Dr. Downie did not refer in his paper to a condition which occasionally may be due to the irritation of adenoids. In young children, just at the age when adenoids are most common, a trouble which causes them much annoyance is nycturia. Several such cases had come under Dr. Newman's observation, and a cure had been effected by the treatment of the nasal obstruction. In one instance a child, who had been in the habit of "wetting the bed" regularly, also had indications of nasal obstruction due to adenoids; these were removed, and very soon afterwards the nycturia ceased.

With respect to the lingual tonsil, it was a source of considerable trouble; hypertrophy of its tissue was nearly always overlooked, and so acted as a continual cause of irritation. By leaving the condition of the lingual tonsil out of account, not infrequently chronic cases of pharyngeal catarrh, even although properly treated, failed to recover.

Dr. James H. Nicoll said he had been asked to take part in discussing the subject of Dr. Downie's paper, and he had prepared a paper on the subject.[1] To his mind the question of primary importance was not the connection of enlarged glands in the neck with hypertrophic adenoid tissue in the naso-pharynx, but rather are not these chronic enlarge-

[1] See *Glasgow Medical Journal*, January, 1896, p. 29.

ments primarily tubercular? He was glad Dr. Downie was treating enlarged glands of the neck by attacking adenoid growths. In his opinion all cases of bilateral strumous enlargement of cervical glands should be treated by removing the lymphoid tissue.

Dr. Newman said enlarged glands in the neck were, in many cases, due to absorption, not from adenoid tissue, but from carious and tubercular teeth.

Meeting V.—6th December, 1895.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Rupture of the Descending Aorta with Remarkable Quiescence of Symptoms for a Time.

By Dr. Finlayson.

T. S., aged 49, cattleman at the harbour, was admitted to the Western Infirmary on 21st January, 1889, with a history that eight weeks before he was thrown down by a bullock while hauling it by the horns, and sustained an injury to the ribs. The man himself, regarding the injury as a fracture of the ribs, had a piece of sticking plaster applied to his side, and resumed his work on the second day after the occurrence. He walked home after the accident, and had no hæmoptysis. On 5th January he became breathless, had pain at the lower part of the left side, and went to bed. In the course of a week he coughed, and brought up a large quantity of red blood, and this continued till two days before admission.

On the night of admission (21st January) he had violent cough, and brought up a large quantity of blood, and continued to bring up bloody sputa till his death, three days after admission. Owing to the patient's condition no special examination could be made, but râles were noted in the chest; the temperature was 102·8° F., and fell to and remained at from 100° F. to 101° F. afterwards.

The *post-mortem* examination was made by Dr. Rutherfurd, who found the right ventricle dilated. The aortic valves were tested by the water-test, and seemed to be incompetent without obvious cause, other than slight thickening of the valves and dilatation of the aorta above the valves.

The ninth rib on the right side indicated a fracture near its middle, which had become united by two bridges of callus. The right lung weighed 32 oz., the left 53 oz., the excessive weight being due to infiltration of the lung with a great quantity of blood. The left lung was separated from the diaphragm by about a pint of black blood-clot.

A tumour, the size of a hen's egg, projected behind from the aorta, and suggested aneurysm, but when taken out the supposed aneurysm was simply a portion of the blood-clot.

On slitting up the aorta there was no pouching of its walls, but there was found a distinct clean tear on the smooth surface of the aorta internally. There was no very marked disease of the aorta.

This patient had been a drunken man for years, but appeared in good health up till the accident which fractured his rib and ruptured his aorta. Dr. Finlayson remarked on the long quiescence of the symptoms after such a grave injury as was actually found.

II.—ANEURYSM OF THE ARCH OF AORTA WITH DIASTOLIC MURMUR, BUT APPARENTLY COMPETENT VALVES.

By Dr. Finlayson.

J. M'D., aged 40, harbour labourer, was admitted to the Western Infirmary, 10th June, 1889. He died on 30th September of the same year. He was treated in the Glasgow Royal Infirmary by Dr. Gemmell, from 10th till 28th March, 1888, for acute pneumonia, and at that time there was no abnormality detected in the heart.

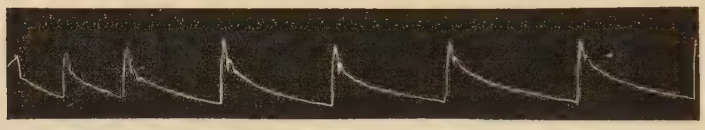
He was also under treatment by Dr. Robertson in the Glasgow Royal Infirmary from 23rd April till 29th May, 1889, suffering from "cardiac valvular disease." On 1st May there was noted "a distinct murmur after second sound in the aortic area," and on 25th May "murmur after the second sound much less distinct." On admission to the Western Infirmary a few days later, he suffered from breathlessness and pain across chest, and had dropsy and albuminuria There was no history of rheumatism. The symptoms were said to be of nine months' duration. There was a history of severe strain, five years before, sustained while supporting a long heavy box which tended to fall on him. He was not off work on the day of the strain, nor did he bring up any blood. A lump appeared in the groin and burst, and the mark still existed showing where the abscess had burst. This abscess was alleged to have come in consequence of the strain.

He had an enlarged heart, heaving impulse, double aortic murmur, and water-hammer pulse.

On 23rd June the diastolic murmur was noted as being very variable in character, sometimes quite distinct, and again barely appreciable; he still suffered from anasarca and orthopnœa.

On 19th July it was noted he spat up a little blood three days ago, yesterday 5 or 6 oz. There was friction on the right side; the condition was regarded as due to embolism of the lung.

A remarkable feature of the case was his great breathlessness that came and went, and he had a peculiar pulse which behaved as if alternate beats were lost. When the beats were missed the breathing became bad, and he felt oppressed. It was not a Cheyne-Stokes respiration, but suggestive of it. At the time the pulse missed there seemed to be a beat lost at the heart also. The pulse-rate was thus double at one time as compared with what it was shortly after.



Sphygmographic tracings were taken both when the breathing became bad and when it was righting itself. The accompanying tracing shows three beats at the usual rate, followed by four beats with nearly double the interval between them. When the slowing of the pulse occurred breathlessness supervened.

30th September.—Dropsy and weakness worse. Before death typical Cheyne-Stokes respiration appeared. The diagnosis arrived at was aneurysm, or rupture of aortic valves, but no definite signs of aneurysm were made out.

At the *post-mortem* examination the heart was found enlarged. The aortic valves were tested by the water test and did not let the water through, but on looking in there seemed to be a small aperture, and the curtains were slightly dilated, but only a small pouch not amounting to an aneurysm. There was a small aneurysm at the origin of the innominate, and another in the descending thoracic aorta, at the posterior wall, at the level of the bifurcation of the trachea, 1½ inch in diameter. There were thrombi in the right auricle which accounted for the hæmorrhagic infarctions in the lungs.

Here we have a case of aneurysm with the aortic valves apparently competent, as tested by water, yet associated during life with a diastolic murmur, although some teach that in thoracic aneurysm the diastolic murmur always denotes implication of the valves; but Dr. Finlayson held with those who believe that a diastolic murmur, in cases of aneurysm, can be explained apart from this lesion. Is this method of the pathologists of testing the valves satisfactory? In a case of Bright's disease of the kidneys he had reported a marked diastolic murmur without any apparent incompetency of the valves, so that pathologists may well be asked to seriously consider the validity of their present test.

During life the condition as to blood pressure in the aorta is very different from that present in applying the water test —the blood pressure is very much higher; and here it is interesting to note that Dr. Robertson also found a distinct diastolic murmur in this patient present at one time and at another so indistinct as to be scarcely recognisable. The sphygmographic tracing probably shows some of the effects of this variation in pressure.

In Aberdeen, Dr. Finlayson saw lately, in the pathological department there, the apparatus used by Dr. Hamilton for testing the valves of the heart, which is described in the first volume of his *Pathology*. By this method air is forced in instead of water, and the pressure can be varied at will.

Dr. Robertson, in discussing the first case, said although the aorta, at the point of rupture, appeared to be healthy, yet, if a portion had been excised and submitted to microscopic examination, some change might have been found to account for the rupture from strain. This man was a heavy drinker, and it is well-known that this habit induces atheromatous changes. The survival might be explained by supposing the rupture to have been very minute; then, on getting about, the force of the current widened the rupture, and led to a large effusion of blood and death. He was sorry not to have known the second case was coming up, as he might have looked up the records of the case when the man was under his care. He regards the water test as insufficient, as the pressure of the water test is not comparable with the pressure of the blood. He thought that in this case, although the valves were competent as tested by water, reflux took place through the valves on account of the dilatation of the aorta and the increased pressure of blood.

Dr. Rutherfurd said, although he made the *post-mortem*

examination, he could not charge his memory at this distant date with the facts of the case; the rupture was near the level of the diaphragm, and it was suggested at the time, owing to the difficulty of accounting for the mechanism of the rupture, that it was due to a drag of the diaphragm on the aorta.

Dr. Gairdner, in discussing the case, briefly described another case of aneurysm, recently observed, which was associated with a double aortic murmur and slightly incompetent valves; the doubt, however, remaining (as it not infrequently does in such cases) whether the murmur, apparently of regurgitation (V.D.), was really due to the presence of the aneurysm or to the valvular lesion. In this case, there was a small aneurysm springing from the posterior wall of the aorta, which communicated by a circular opening with the vessel, projecting at the same time backwards and impinging on the trachea, so as to lead to great difficulty of breathing; it had ruptured into the trachea by a very small opening, a few hours before death, when only a small quantity, estimated at 3 to 4 ounces, of blood came away. The man had suffered a rheumatic attack five years before, which gave probability to the idea of endocarditis, although the patient seemed to himself to have made a good recovery. The symptoms, however, were considered during life to indicate something more —tumour or aneurysm pressing on the trachea. It was not easy to say in this case, even after the *post-mortem*, how far the murmurs were due to aortic incompetence, and how far to the aneurysm. The very small amount of the incompetency as tested after death, and the absence of much deformity of the valves (the radial pulse, too, having scarcely been characteristic), make it open to doubt, even now, whether the murmurs, though quite typically those of aortic valve disease, were wholly valvular. Dr. Gairdner is not quite sure whether on physical principles he can agree with Dr. Finlayson, that the valves might be found competent *post-mortem*, when their incompetency during life was the result of vascular tension (normal or otherwise), the valves themselves, and the orifice, being apparently normal. He (Dr. Gairdner) was inclined to think, as a question of physics, that the effect of vascular tension under such circumstances would rather be to close the valves.

Dr. Coats said in making the examination he lets the water drop from a height so as to get strong pressure, varying the height as may be desired. If the aortic valves are competent with a slight pressure, they are also with greater pressure, the curtains being pressed together and the opening closed more

completely. On the whole the water test is a valuable one, as the valves can be inspected while the aorta is filled with water. He did not know Hamilton's apparatus, but it seemed to him that air would pass through where water would not, so the test cannot be called a satisfactory one in considering the reflux of blood. The water test is of no use with the auriculo-ventricular valves, and if Hamilton's test applies to these it must be of great advantage.

Dr. Finlayson, in his reply, said the remarks made by Dr. Coats did not apply to cases of dilatation of the aorta; the dilatation is certain to be greater during certain phases of cardiac action. Thus dilatation comes to be important in connection with the amount of pressure on the valves, for while incompetent with great pressure, they are not so with less pressure. He hoped his remarks on Hamilton's apparatus would lead to a trial of the method.

III.—THE USE OF TETANUS ANTITOXIN IN CASES OF TETANUS.[1]

By. Dr. Macartney.

Dr. Macartney read a paper on the use of tetanus antitoxin in two cases of tetanus, and the subject was discussed by Mr. H. E. Clark, Drs. Renton, Hawthorne, and Newman.

IV.—PERFORATING ULCER OF THE STOMACH.

By Dr. Dalziel.

A. B., aged 26, had suffered for some years from symptoms of gastric ulceration. When visiting in Glasgow she was seized with violent abdominal pain, and was seen by Drs. Snodgrass and Adamson, who diagnosed rupture of some viscus. She was seen by me three hours after the attack, and then was suffering from profound collapse; skin cold and voice husky. Pulse about 130, and temperature 103° F. Abdomen retracted and tender to pressure in the right iliac fossa and up the ascending colon. Pain was also complained of at the root of the neck and in the left shoulder. There was little doubt that some viscus had ruptured, though which could not be definitely ascertained, especially in the absence of her previous history, which was not obtained till afterwards.

The patient was immediately removed to the M'Alpine Nursing Home, and laparotomy performed 5½ hours after the attack.

The incision was made by the outer edge of the right rectus

[1] Reported *in extenso* in *Lancet*, 18th January, 1896.

muscle in view of the seat of pain. On opening the peritoneum a quantity of yellow turbid fluid was seen to be flowing down along the ascending colon. The incision was extended upwards, and the source of the fluid found to be a round aperture in the anterior wall of the stomach close to the pyloric band. This aperture measured about a quarter of an inch in diameter, and had a "punched out" appearance with thickened margins. The ulcer was removed by an elliptical incision in the long axis of the viscus, as it seemed to implicate the pylorus. Chronic irritation had led to considerable thickening of the tissues, so that it was not possible to invert the peritoneum as usual — the mucous membrane was therefore stitched separately and thereafter the margins of the wound accurately approximated with fine silk sutures, and a convenient fold of peritoneum stitched over it.

Stomach contents were found over the right side of the abdomen and in the pelvis. By careful sponging and the use of aseptic water the peritoneum was cleansed, a glass drainage tube left in the pouch of Douglas, and the abdominal wound stitched in layers.

The patient made a perfect and uneventful recovery, with the exception of some flatulent distension of the stomach, at the end of a fortnight.

At the end of two months the patient returned home, able to digest with comfort an ordinary diet, which she had not done without pain for some years.

The following extract from the Museum Catalogue briefly describes the portion removed by operation:—"The preparation is a diamond-shaped piece of the stomach wall, in which there is a nearly circular opening, measuring about 3 mm. in diameter. It comprises the whole thickness of the wall, as if the piece had been punched out. At the lower edge, a piece of mucous membrane protrudes, which is really displaced, being a portion of the mucous membrane dissected during the operation, and sticking up so as to become fixed in process of hardening."

Dr. Adamson said—I wish briefly to refer to two of the many interesting points which this case presented, keeping to the clinical and diagnostic aspects only.

1. *The Behaviour of the Liver Dulness.*—In cases of suspected perforation of an air-containing viscus in the abdomen, there may be alteration in the liver dulness, as is well known, from complete to partial obliteration of it, its place being taken by a tympanitic note. It was not so in this case. Absolute dulness was found along the right costal

margin, and extended upwards to nearly the normal extent. I observed, however, that while the abdomen (one hour and a half after the sudden onset of the illness) seemed then remarkably flat, the percussion note just below the liver dulness was highly resonant—more so, in fact, than the flatness of the abdomen, and apparent absence of any great amount of gas *in* the intestines, would have led one to expect.

The distinction, however, was a fine one, but this point—viz., the quality of the percussion note relative to the apparent state of the intestines, is worth noting, and might, in other cases, be more suggestive in forming a diagnosis. The main point, however, which this case illustrates, is that as regards the alteration of liver dulness, we cannot, as is well known, from the absence of any such alteration, exclude the possibility of the perforation of an air-containing viscus; while, on the other hand, the positive affirmation of the characteristic alteration is of the greatest value, in the very early stages of the case, before tympanitic distension has set in.

2. *The Distribution of the Pain.*—I omit reference to the abdominal pain altogether. I was struck at the time with the complaint of pain—marked and emphatic complaint—in practically the whole thorax in front, and especially in the clavicular and supra-clavicular regions, and also in the scapular region and back. At the time the explanation did not occur to me, and I was inclined to pass over a symptom which seemed to confuse the diagnosis, whereas, I believe, accurate interpretation of it would have strengthened the conclusions eventually arrived at. The obvious explanation is that these pains were "referred pains," and the connections of the splanchnic nerves with the lower six intercostal nerves through the dorsal sympathetic ganglia, and in the spinal segments, need only be mentioned to indicate the reason of the pain in the lower six intercostal spaces. In the same way the clavicular and supra-clavicular pains are explained when we recollect the relations that exist between the phrenic nerves and the descending superficial cutaneous branches of the cervical plexus, the latter coming from the fourth cervical, the phrenic from the fourth and fifth. The violent irritation of the upper abdominal zone, by the escape of stomach contents, so energetically stimulated the terminal phrenic filaments that an overflow of stimulus centrally was referred to the cutaneous positions indicated. In future cases the presence of this pain might well be included as a minor strengthening factor—rather than as it was with me at the time, a disturbing one—in arriving at a diagnosis.

Dr. Middleton congratulated Dr. Dalziel on the success of his operation, and remarked that the success was largely contributed to by the speed with which the diagnosis had been made. He had been interested by the remarks of Dr. Adamson on the symptoms of gastric rupture, but he thought that, in those cases which survived the accident for some time, the symptoms were not always such as could be relied upon in the way of diagnosis. In this connection he referred to a case which had been recently sent into his wards as one of left basal pleuro-pneumonia with peritonitis, a diagnosis that he had confirmed. In that case, as time went on, the pleuro-pulmonary signs seemed to spread upwards and even to the right side, and pericarditis also was suspected, while the peritoneal signs gradually concentrated themselves in the right iliac region. The girl died after ten days' illness, and examination revealed a large sub-diaphragmatic abscess, arising from perforation of a gastric ulcer, of which no history could be obtained. There was no pericarditis, no pneumonia, and only a trace of pleurisy. In addition, there was a large abscess in the right iliac region, without any connecting channel between the two abscesses.

Dr. Renton also congratulated Dr. Dalziel on what he regarded as the first successful case of the kind in Scotland. In cases of rupture of the stomach, the patient when seen is usually collapsed, and the feeling against operation is great. He had seen three cases of rupture of the stomach where operation was recommended but not accepted. He was pleased with Dr. Adamson's explanation of the pain, but the same pain sometimes occurred in intense flatulence. Such a case he had seen with the late Dr. Leishman, who relieved the condition by passing a trocar.

Dr. Newman said perforation of the stomach was a condition most disastrous in its results unless recognised at once and promptly treated by immediate suture. Dr. Dalziel was to be congratulated on the successful result of his treatment, which was doubtless due to the rapid diagnosis and to the promptitude with which the operation was performed. Dr. Newman said that in most of the cases of perforating ulcer of the stomach which he had seen, the ulcer was situated at the pyloric end and on the posterior wall of the viscus, and was therefore readily accessible by an incision in the middle line. The case mentioned by Dr. Middleton had been sent into Dr. Newman's ward, but although there were evidences of acute abdominal disease, the facts of the case were so complicated, and the patient's general condition so bad, that an operation was not

considered advisable. In this case the perforating ulcer had no doubt been present for a considerable time, and while it had eaten through the walls of the stomach, the viscus had formed adhesions with neighbouring structures, and so actual rupture into the general peritoneal cavity had been delayed. In some instances, even after leakage of the gastric contents, the perforation may become sealed by glueing of the stomach to neighbouring parts, and so the symptoms of general peritonitis may be masked and indefinite, as in Dr. Middleton's case, in place of being well defined, as in that of Dr. Dalziel. The cases of recovery of ruptured gastric ulcer in which, after laparotomy, the perforation was found and sutured are very few. Mr. W. H. Bennett, London, Mr. J. H. Morse of Norwich, and Mr. Jowers of Brighton, have published successful cases. Dr. Kriege also records a case of recovery where seventeen hours elapsed between the onset of the symptoms of perforation and the operation.

Dr. Coats said he was pleased to see a beginning in this kind of treatment in Glasgow. In several cases he had found on *post-mortem* examination a perforation of the stomach which apparently might have been successfully treated by surgical measures. The symptoms, with the exception of the initial shock, do not arise from the perforation but from the irritation produced by the escaped contents of the stomach, and as these gravitate towards the lower abdomen it is here rather than in the gastric region that pain, tenderness, and other symptoms are to be expected.

V.—MICROSCOPIC SPECIMENS.

By Dr. John Love.

Dr. John Love showed microscopic specimens illustrating diabetic and traumatic peripheral neuritis.

Meeting VI.—13th December, 1895.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Treatment of Syphilis by Injections of Syphilitic Antitoxin.[1]

By Prof. M'Call Anderson.

J. C., æt. 22, labourer, admitted to Ward V, on 11th November, 1895, suffering from a skin eruption of four weeks' duration.

The family and personal history reveal nothing of importance in connection with his present illness.

Seven weeks before admission he exposed himself to contagion, and a fortnight afterwards he noticed a discharge from the urethra, associated with pain on micturition. A week later there appeared a hard chancre on the glans, just at the corona, and this was followed in a fortnight by an eruption on his skin, which chiefly affected the head, buttocks, and trunk. During the appearance of the eruption he suffered very considerably from pains in his legs and from headache, both of which were worse at night. A week before admission he began to feel his throat sore, and his voice became hoarse; but the hoarseness was out of all proportion to the pain. There was no pain or itching in connection with the eruption, and little exudation except where pustules formed.

On examination, the chancre was found to be healed, but at its site there was great induration. The inguinal glands were very hard and enlarged. The eruption was chiefly on the face and trunk, but the limbs were also slightly affected. It was symmetrical, copper-coloured, dry, and scaly. It consisted of rounded discrete patches. Most of them were slightly elevated, and they varied in size from that of a halfpenny down to that of a pin-head. In the region of the anus there were a few condylomata. On the tongue were several superficial erosions, and on the buccal mucous membrane there were large elevated mucous plaques, and on the lips a few smaller ones. At the junction of the oral mucous membrane with the skin there

[1] See article by Mr. Cotterell, in the *British Journal of Dermatology*, November, 1895, p. 349.

were fissures on both sides, so deep that when touched they bled. There was slight superficial ulceration of both tonsils.

On 15th November he was placed under treatment by hypodermic injections of serum, obtained from a patient suffering from well-marked syphilis (see below). The injections were given on an average every second day, and were continued till 9th December. The quantity injected at first was ·5 c.c., and this was gradually increased, until on the last four occasions 5 c.c. were injected. In all, 35·5 c.c. of serum were injected, approximately an ounce and a quarter.

On 11th December the induration at the side of the chancre was less marked. The glands remained unchanged. The skin eruption had entirely disappeared, only the stains remaining. The erosions on the tongue were healed, and the mucous patches almost gone. The ulceration of the tonsils had healed, only the scars being visible.

On 21st December he was dismissed, still further improvement having taken place.

The following is a short outline of the patient, J. M'K., aged 28, stableman, from whom the serum for the above treatment was obtained:—

Two years ago he had a single sore on the penis, with enlargement of the glands in the groin. This was followed by nocturnal headaches, pains in the limbs, and a skin eruption, which disappeared under treatment. He has always been hoarse, but does not remember having had a sore throat. His hair has fallen out since he contracted syphilis. A year ago he was under treatment in Ward V for syphilitic psoriasis. When the serum was obtained from him, he had three rings of eruption on his skin—one on the right arm, another on the left side, and the third on the nape of the neck. Each was dusky in colour, tuberculated, dry, and insensitive.

II.—ANEURYSM OF THE AORTA TREATED BY BATHS ON THE SCHOTT PRINCIPLE.

By Prof. M'Call Anderson.

A. B., a lady, aged 58, who had been for many years an invalid, was first noticed to have pulsation in the suprasternal notch in November, 1894. She had for some years previously enjoyed partially recovered health, but in the autumn of that year was subject to mental disquietude on account of family affairs. Shortly after this period of excitement the first

symptoms were noticed, and when an examination was made, in the end of 1894, it was found that pulsation was present in the suprasternal notch, and extended 1 in. to $1\frac{1}{4}$ in. above it. It was also to be felt more slightly to the left, and to a less extent to the right of the sterno-mastoids. There was no definite dulness in the chest itself below the level of the clavicles. There were also no pressure symptoms. The diagnosis hinged, therefore, on the presence of abnormal and expansile pulsation in the suprasternal notch. Hence it was inferred that an aneurysm of the transverse part of the arch of the aorta was present. The patient was treated by the ordinary drugs—potass. iodid., amyl. iodid., tinct. veratr. virid., &c. Of these she bore the last best, and it seemed to improve the condition to some extent. None of them, however, had any permanent effect, and it was therefore decided to try the Schott treatment carefully. In August, 1895, she was put upon a course of baths, the exercises being considered inappropriate. When the course began, the physical signs were as follows:—In the suprasternal notch, expansile pulsation, extending $1\frac{1}{4}$ in. above the sternum; and to the right and left (in the course of the subclavian arteries) a less marked pulsation. The pulse was regular, and averaged between 80 and 90. Palpitation was a frequent symptom. The cardiac dulness measured transversely $3\frac{3}{4}$ in.; its upper limit was not altered. Cramps in the legs were frequent, and were apparently due to varicose veins from which the patient suffered.

From the 7th August until the 13th September she underwent a course of baths—twenty-eight in all being given. Of these, two or three were on consecutive days, then there was an interval of a day. At one time the baths contained 2 lb. NaCl, and half an ounce to one ounce $CaCl_2$; at another 1 lb. $NaHCO_3$, and $1\frac{1}{2}$ lb. 25 per cent HCl. Beyond this limit the strength was not increased.

At the end of the course the cardiac dulness, which had before measured $3\frac{3}{4}$ in. in the transverse diameter, was reduced to $2\frac{1}{2}$ in. The pulse rate had fallen from between 80 and 90 (a rate which rose when patient was excited, or exerted herself, to over 100) to an average of about 74. Palpitation was much less troublesome. The cramps in the legs were less frequent, and the veins appeared to be less distended. There was thus a marked improvement in the cardiac condition. The aneurysmal aspect of the case was slightly improved. The pulsation was quieter, and the cardiac sounds (no murmur had ever been present) were less distinctly heard over the affected area. Both sounds remained audible, and the difference in

the pulse rate and intensity seemed to be determined by the effect of the treatment upon the heart, apart from any influence it may have had upon the great vessels. Her general condition was much improved—a circumstance which was apparent, not only to herself, but also to her friends.

III.—DILATATION OF THE HEART TREATED BY EXERCISES ON THE SCHOTT PRINCIPLE.

By Prof. M'Call Anderson.

Mrs. B., æt. 30, admitted to Ward VII on 1st November, 1895, complaining of weakness, palpitation with breathlessness on exertion, and cough of six months' duration.

The family history reveals nothing of importance in connection with her present illness.

She was married eight years ago, and has had four children—the first, third, and fourth at full term, the second about the seventh month. The miscarriage was supposed to be due to an attack of cystitis which subsided rapidly afterwards. She had a similar urinary attack between the sixth and seventh month of her third pregnancy. It yielded to rest in bed and local treatment, and since then there has been no recurrence. With the above exceptions, she had always enjoyed excellent health. She has never had rheumatic fever, scarlet fever, or chorea.

The present attack began about six months ago with a feeling of weakness after exertion. Breathlessness and palpitation soon followed, and it was noticed that agitation gave rise to attacks of palpitation. A little later cough set in, accompanied by a whitish, frothy expectoration. These symptoms gradually increased until now she is quite unable for any housework, though when lying at rest in bed she feels pretty comfortable. She has not at any time noticed swelling of the legs or puffiness under the eyes.

Examination on Admission.—Heart—Heart's action was found to be very rapid and irregular. The apex beat was diffuse, and there was epigastric pulsation. The apex beat was situated $2\frac{5}{8}$ in. below the nipple, and $1\frac{1}{4}$ in. to the left of the nipple line. The percussion dulness extends upwards to the upper border of the third left costal cartilage. The right edge of dulness is $1\frac{1}{8}$ in. to the right of the midsternal line. Transverse measurement at level of the nipple is $5\frac{5}{8}$ in. Oblique measurement from third rib to apex is 7 in. There is a soft blowing V.S. murmur heard at the apex.

Pulse.—It is very irregular and thready; counted at the apex beat it numbers 152 beats per minute.

Liver.—There is slight tenderness in the epigastrium. Percussion dulness measures 4¼ in. in the nipple line.

Lungs.—There are fine moist râles heard over both bases. Nothing else abnormal made out.

Urine.—Normal.

Dr. M'Call Anderson decided to treat the patient by the Schott method. On 8th November she had a bath, and another on 9th November. The first bath seemed to cause no ill effects, but the second one produced a considerable increase in the difficulty of breathing and lividity, probably owing to the temperature of the room not being attended to. The baths were therefore stopped, and on 16th November treatment by exercises was commenced, the first four exercises being given on that day. On 17th and 18th November four more exercises were added on each day, and on the 19th she had the whole of the exercises. From that date till 6th December she had the full course of exercises daily.

Dr. M'Call Anderson examined her on 11th December with the following results:—

Heart.—Apex beat is now found to be 2½ in. below the nipple, and half an inch outside the nipple line. The right border of cardiac dulness is three-quarters of an inch to the right of the middle of the sternum. Transverse measurement at level of nipple is 4¼ in., and the oblique measurement 6 in.

Pulse.—It is much stronger and more regular. It numbers 88 to 104.

Liver.—The tenderness has gone. It now measures 4 in. in the nipple line.

Lungs.—The râles have disappeared.

Urine.—Normal. It has increased decidedly in quantity since the exercises were commenced.

General Condition.—The lividity has entirely disappeared, and the breathing is much freer. She feels better and her strength has increased, as is apparent to the one giving her the exercises.

13th December.—She went home to-day owing to the illness of her child, so that the course of treatment was interrupted; the evil consequences of the interruption will, no doubt, soon become apparent.

Dr. Eben. Duncan thanked Prof. M'Call Anderson for bringing the subject before the meeting. In his own practice he had treated nine patients by the method, and, from the

varied nature of the cases and the results of treatment, he had been able to form an opinion as to the proper subjects for treatment. It might be used in patients suffering from ordinary forms of valvular disease with dilatation, and in the early stages of aneurysm; but it was clearly inadmissible in advanced aneurysm, atheromatous vessels, and fatty degeneration of the cardiac muscle. He looked upon the new treatment as an enormous advance on previous practice.

Dr. Messer, Helensburgh, gave details of a case, treated some years ago by baths and exercises, where the patient, who had gone home to die, was restored apparently to good health.

Dr. Jack corroborated Prof. M'Call Anderson's account of the results of treatment in the case of aortic aneurysm, and laid special emphasis on the diminution of the cardiac dulness and the recession of the apex beat.

Dr. Somerville had no experience of the new method of treatment, but he had noticed the beneficial results of exercise in cardiac cases. In the case of a lady, aged 37, who suffered from dilated heart and asthma, graduated exercises improved her condition. He did not approve of the exercises as demonstrated by Prof. M'Call Anderson. He would not let a patient with heart disease stand in doing the exercises, and he would eliminate the exercises that subjected the patient to undue strain.

Dr. Hinshelwood said he was sceptical as regards the new method, and watched Mrs. B. under treatment. The result was decided, the cardiac dulness was diminished, the pulse was improved, and the symptoms of distress were removed. He had looked up the literature of the subject, and found that while those experienced in the treatment differed as to the *rationale*, they were unanimous as to the results. This unanimity, and Prof. M'Call Anderson's demonstration, were proofs of the value of the treatment.

Dr. M'Gregor Robertson said he had visited Schott at Nauheim, and placed a patient under his treatment. Anyone who had seen the whole method of treatment and the results must believe the statements as to the value of the new method. The patient, before treatment, was pallid and worn, had dark rings round the eyes, and walked with difficulty; after the bath she came out looking pleasant and bright, and walked very well. As to the *rationale* of the treatment, he thought Saundby's explanation would not stand examination. He did not believe that a bath of five minutes' duration and two simple exercises could strengthen the cardiac muscle; the

result was probably due to a redistribution of the blood from changes in the peripheral vessels. The slowing of the pulse and the change in blood pressure do not set aside this explanation. In one of Dr. Duncan's cases, the first few seconds in the bath caused discomfort. This was due to contraction of the superficial arteries, caused by the saline ingredients of the bath stimulating the skin, followed by a rush of blood to the skin, and consequent relief. Pulse tracings should be taken at once on coming out of the bath, as for the first few days dilatation of the heart reappears an hour or so after the bath; permanent effects only follow prolonged treatment. The removal of inflammatory products, and the increase of urine after the baths, probably also result from changes in the peripheral circulation.

Dr. Kirk had had his attention drawn to the new method by Dr. Thorne's results. He had subjected a patient with dilatation of the heart to a course of fourteen baths, combined with strict regimen and deprivation of whisky. His general appearance was greatly improved, and the apex beat, which was 1 in. outside the nipple line before the baths, receded towards the middle line. He had read Dr. Thorne's book and noted one case in particular, where the pulse was 96 before the bath and 80 in the bath, but as nothing was said as to the patient's posture when the pulse was taken before the bath, it was quite possible that the reduction in pulse-rate was chiefly due to change of posture.

Dr. Wright said Mrs. B. was one of his patients; he had known her condition for two years, and had treated her on several occasions by rest in bed and digitalis. After a rest in bed she could resume her household duties, and appeared to be as well then as she was to-night. He had taken the opportunity of asking her if she felt more benefit from the new treatment than from the old, and she answered in the negative.

Dr. Hawthorne said they were indebted to Professor M'Call Anderson for bringing forward these cases in detail. He thought that as some cases were unsuccessful, we should have some indication as to the cases likely to be benefited by the treatment, and that an attempt should be made by pulse tracings to determine whether the treatment does or does not increase the blood pressure. He regarded as doubtful the explanation of the results by a supposed dilatation of the peripheral vessels and a fall of blood pressure, as the slowing of the heart, the diminution of dropsy, and the increase of urine all pointed to an increase of pressure.

Dr. M'Vail said that he could not agree with Dr. Hawthorne's statement that Dr. Anderson had given the cases in detail, as there was an absence of precision throughout. There were no sphygmographic tracings, and no clear account of the patient as she would have been with rest alone. All the cases he had read and heard of were loosely recorded as to the condition before treatment began, and were largely valuless, as the influence of rest apart from special treatment was not stated. Dr. M'Vail doubted the possibility of defining cardiac percussion in the absolute and detailed manner suggested in Dr. Anderson's diagrams. Then, as to the exercises, he was sceptical as to the utility of these movements. He ridiculed the idea that a gentle flexion of the arm could have the influence ascribed to it in the new method of treatment. Certainly if two or three simple movements of the arms or the use of baths do the good alleged, the age of miracles is not past.

Dr. Lindsay Steven said he had, during the discussion, made a rapid examination of the patient's heart. The transverse cardiac dulness was 4·5 in., the apex beat was 1·5 in. outside the nipple line, and the heart greatly excited. He regarded the patient as anything but cured, and was willing to admit her to his ward at once for immediate treatment. He had seen nothing marvellous in the results of the treatment as demonstrated

Professor M'Call Anderson agreed with Dr. Somerville that the exercises could be modified with advantage. He reminded Dr. Steven that the patient was compelled to go home before the treatment was ended, and she was nervous on account of her sick child, also that the examination Dr. Steven made was not conducted carefully, whereas the previous examination had been made in bed. He did not agree with a single statement made by Dr. M'Vail. It was difficult to percuss out the heart in obesity, but easy in all other cases. He was careful to map out the dulness with the patient lying at rest, and he always secured verification of his measurements. His own observations tallied with the observations of Saundby, Broadbent, and Schott, a considerable body of evidence, as against Dr. M'Vail who had had no experience of the method of treatment. Mrs. B. was in bed fourteen days before treatment was tried, and rest alone did not improve her condition.

Meeting VII.—10th January, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Notes of a Case of Vaginal Cystotomy, with Exhibition of the Stone for the Removal of which the Operation was Performed.

By Dr. W. L. Reid.

Miss M'N., æt. 59, was first seen by me on 19th October, 1895, with a history of pain in the bladder and frequency of micturition for sixteen or seventeen years past. She is a maiden lady of retiring disposition, and although she had consulted various medical men and had taken much medicine, she had always refused to permit a local examination, and now only consented because of the severe pain.

The urine was found albuminous, and with a large muco-purulent deposit. Its specific gravity was 1026, and it contained little or no blood.

On a sound being passed into the bladder, a rough and apparently large stone was felt. The vaginal orifice was so contracted and tender that no satisfactory examination of the base of the bladder could be made.

The vagina was douched for the previous twenty-four hours with a 1 in 2000 solution of corrosive sublimate; and on 25th October, with the assistance of Dr. A. W. Russell, the patient was put under chloroform, and the urethra dilated so as to admit of the passage of the little finger. It was then ascertained that removal of the stone *per urethram* was out of the question. The perinæum was therefore split to near the anus, and the base of the bladder cut through in the middle line from the cervix uteri to the neighbourhood of the sphincter. Even with this large wound, it was a matter of difficulty to grasp the calculus with the forceps and drag it through the opening. The bladder and vagina were well washed out with boracic solution, and, in view of the unhealthy condition of the interior of the bladder, no attempt was made to close the wound. The calculus, in the fresh state, weighed 872 grains.

The patient had little after-pain and no raised temperature, and the treatment consisted in vaginal douches containing

boracic acid, and the same drug by the stomach in 10-grain doses three times a day.

In eight days the patient began to pass some urine by the urethra, and in the fifth week the wound in the bladder had quite healed. At this date (10th January) the patient is well, except that for a day or two now and again there is some discomfort in the bladder, accompanied by mucus in the urine, and she has to return for the time being to the use of the boracic acid powders.

Dr. Jas. A. Adams asked if the patient, after the operation, retained control over the bladder. He also desired to elicit the President's experience of supra-pubic cystotomy as the preferable operation in these cases. In three cases lately occurring in his own practice, supra-pubic operation was performed with excellent results. In one of these cases the stone was very large, and occurred in a man aged 74 years. The bladder and the superficial wounds were both stitched up, and healed by first intention, and the man was well and about again in fourteen days. In another case, of an equally large stone, and operated on in a similar manner, all went well till the fourteenth day, when the instrument slipped out, and slight leakage took place from the wound, but the patient ultimately did well. In the male especially the operation was to be recommended, more particularly if a large catheter could be tied in. The mucus readily escaped from the bladder, and there was no mutilation of the prostate and urinary tract.

Dr. Reid, in reply, stated that the patient had control over the bladder. His experience of supra-pubic cystotomy was *nil*, and that for two reasons—first, owing to the dilatable urethra the majority of his cases had been treated by dilating the urethra, and subsequently extracting the calculus by the urethra; and, secondly, if the stone proved too large, the contiguity of the vagina and bladder made vaginal cystotomy an easy and effective method, and the results obtained could not be surpassed by the other operation. Therefore, he felt inclined to stick to the vaginal operation in the female.

II.—ON SHORTENING OF THE ROUND LIGAMENTS IN DISPLACEMENTS OF THE UTERUS.

By Dr. Jas. A. Adams.

This operation was first brought before the profession in 1882 by Dr. Alexander, of Liverpool, and by myself, as a substitute for ineffectual stems, pessaries, &c. Since then

the utility of the operation has been much discussed: some English surgeons condemn it absolutely; whilst others, especially those resident in the Midlands, claim that it possesses great value in suitable cases. In this city it has not taken the position that I think it is entitled to, although I know that Dr. Reid has operated in many cases, and I trust we shall have the benefit of his experience this evening. My junior position when I introduced the operation, and the lack of opportunity for testing its efficacy in suitable cases in private and hospital work, prevented me from bringing it prominently before the profession in Glasgow. With greater facilities and larger experience, I have of late years tested the operation thoroughly, and the confidence I feel in its success impels me to ask my obstetric and surgical colleagues to give it a fair trial.

Curiously enough, the operation has found warm advocates on the Continent; and in France, Germany, and also in America it has been adopted by many eminent surgeons. Kocher, in his very excellent work on surgery, recently published, has devoted some space to the details of the operation, and advocates stitching the ligaments backwards towards the anterior superior spinous process instead of to the pubes.

In the quite recent work by Keating and Coe, *Clinical Gynæcology by American Authors*, the writer at pp. 505, 506 states—"I have thus far during the past ten years performed it sixty-five times, with such success both as to the immediate and permanent results as to render me more and more enthusiastic in its favour. I have not only succeeded in lifting up and keeping the uterus in its normal position for years after the operation, but I have seen probably as many as a dozen of the cases conceive, go to term, be normally delivered, and the uterus retain the position in which I placed it."

The round ligaments, upon which we depend, vary in their strength and development, and I may be permitted to quote, from a paper I published in 1882, the following sentences:—

"The *round* ligaments have attracted the attention of many anatomists since they were specially referred to by Carolus Stephanus. To him may in truth be attributed the merit of their discovery, but it is to Winslow we are indebted for the first accurate description. That the round ligaments contain muscular fibres was first pointed out by Meckel, although he did little more than refer to these organic fibres as being continued on the round ligaments from the walls of the uterus itself. I note that above twenty authors, more or less eminent,

have since given detailed descriptions of the structure, relations, and supposed uses of the round ligaments.

"Amongst these observers Rosenberger may be specially mentioned as having distinguished three fasciculi of striated muscular fibre, of which two join the transverse abdominal muscle, while the third ends at the upper margin of the external abdominal ring. Rau has described, in the round ligaments, fibres which terminate in the mons veneris and vulva, and others which he traced to the crest of the pubes. He held that the uterus was drawn down and fixed by the round ligament,[1] during the ninth month of pregnancy, and while the pains of labour occurred; and in these views he is corroborated by Velpeau, who states that he has seen these ligaments contracting, and also by Schweighauser, who felt a vermicular motion in them in a case of inverted uterus.

"Dr. Schïff first pointed out that the round ligaments became greatly enlarged during pregnancy, even to four times the thickness, he alleges, of their condition in the virgin, and he states that they end in a kind of cone on the walls of the uterus. My own dissections of uteri in the conditions which attend the impregnated state so far confirm the views of Dr. Schïff as to satisfy me that a decided increase in the size of the round ligaments is a certain result, but not that the change is so considerable as Schïff has attempted to make out.

"But the most complete and altogether reliable description of the round ligaments is that given by Dr. Rainey,[2] who says—'The so-called round ligaments of the uterus, regarded as a muscle, may be said to arise by three fasciculi of tendinous fibres—the inner from the tendon of the internal oblique and the transversalis near to the symphysis pubis; the middle, from the superior column of the external ring near to its upper part; and the external fasciculus from the inferior column of the ring just above Gimbernat's ligament. From these attachments the fibres pass backwards and outwards, soon becoming fleshy. They then unite into a rounded cord, which crosses in front of the spermatic artery. . . . It then gets between the two layers of the peritoneum forming the broad ligament, along which it passes backwards, downwards, and onwards to the anterior and superior part of the uterus, into which its fibres, after spreading out a little, may be said to be inserted. . . . After passing between the layers of the broad ligament to about the distance of an inch and a half from its superior part, they degenerate into fasciculi of granular fibres, mixed with long threads of fibro-cellular tissue.'

[1] *Stricker's Jahrbuch*, 1872. [2] *Transactions of the Royal Society*, 1850.

"Besides muscular fibre, the round ligaments contain numerous vessels, together with some nerves and also absorbents. The arterial trunks are large, but the capillary vessels are similar to those found in ordinary muscular tissue. Intermixed with the substance of the round ligament there is a very considerable quantity of fibro-cellular tissue, so great indeed as to lead a superficial or incautious observer to overlook altogether the presence of muscular fibre, more especially as the colour of the muscle is pale and in contrast with the deep red of voluntary muscle in the limbs. But of the character of the muscular tissue found in the round ligament there is no doubt, and it is easy to demonstrate its striped nature under the microscope. Of this character I have sufficiently satisfied myself, and my friend and colleague, Dr. Allen, in his independent examination of the tissues under the microscope, found it clearly demonstrable that the muscular fibre was of the voluntary or striped variety.

"The fact that the round ligament is composed in chief part of muscular tissue leads naturally to an inference—but to an erroneous inference—that the ligament would prove friable or easily torn asunder. Such, however, is far from being the case, for in thirty subjects in which I have sought specially to determine this point I have found that the structure was capable of withstanding a very considerable traction. I found it easily capable of drawing the uterus close up to the internal inguinal ring without in any perceptible degree lacerating, much less snapping asunder, the ligament itself. This degree of tenacity is no doubt due to the abundance of fibro-areolar tissue which is intermixed with the muscular.

"So much for the mere structural anatomy of the uterine ligamentous appendages, and we are now open to consider what the functions may be of the round ligaments—of the long bands—that are so curiously constructed.

"In such of the lower animals as have the uterus situated above the pelvic brim, as the dog, sheep, &c., the so-called round ligaments pass forward from the uterus and are attached to the last rib and to the aponeurosis of the diaphragm, consequently they draw the uterus upward and elongate the vagina. Velpeau,[1] Maygriers,[2] and Rainey[3] agree in a conjecture that this elongation facilitates the passage of seminal fluid towards the os uteri. However this may be, the conjecture is only referred to in the present connection as

[1] *Anat. Chir.*, 1833, vol. ii, p. 272.
[2] *Nouvelles Demonstrations d'Accouchement*, p. 62.
[3] *Phil. Trans. Roy. Soc.*, 1850.

illustrative of the varied functions which are attributed to the round ligaments and of the important considerations to which a study of their functions gives rise. In the human subject they are certainly not rudimentary organs, but have important offices to perform. Thus, beyond question, they prevent the fundus of the uterus from being pressed too much in a backward direction, and likewise aid much in preventing the entire body of the uterus from being prolapsed and from resting with undue weight upon the rectum. They also facilitate the process of parturition by fixing and maintaining the uterus in due relation to the pelvis during the pains of labour, and it is very probable that they further aid in preventing the gravid uterus from falling backwards and pressing upon and obstructing the action of the lower intestine.

"After this exposition of the relations and functions of the structures which sustain the uterus in its normal position, it is easy to recognise that where the round ligaments have from any cause or set of causes become relaxed the liability to prolapse or to versions of the uterus is likely to occur. And it is equally evident that by drawing up and shortening the round ligaments the uterus will be suspended upright, so to speak, in the pelvic cavity, and will be sustained in that normal position without being subject to the numerous causes of irritation and of displacement which attend upon the employment of mechanical appliances *ab externo*."

The advantages claimed for this operation, when properly performed, are as follows:—It rectifies all cases of retroflexion and retroversion *where no adhesions exist;* by it most, if not all, cases of prolapse can be kept in proper position with or without the aid of a pessary; it leaves the vaginal functions unimpaired; it is practically without risk; and, lastly, it is easily performed with a little practice.

The disadvantages are that the ligaments may be small, weak, and difficult to find; but I have no hesitation in stating that, if they are not found, the fault lies with the operator. The patient requires to lie at least a month in bed, and if the inguinal canal is not properly closed a hernia may develop.

Of late I have treated all cases of retroflexion with the usual muco-purulent flow from the os uteri, by dilating, curetting, packing with iodoform gauze, and shortening the round ligaments.

Regarding the operation itself, I think the following details are important:—The parts are carefully shaved, and the patient kept two days in bed. The temperature should be carefully noted during this period. The vagina should be

well douched with warm boracic solution, and the rectum thoroughly emptied.

The skin should be well scrubbed with turpentine and spirit of wine in preference to ether, and the parts protected in the usual manner. The skin incision should be semilunar and not over the position of the inguinal canal. This semilunar flap is turned downwards, and when replaced it brings a firm pad of healthy skin against the wound in the external oblique tendon. The wound is also less likely to be soiled by the dressings slipping.

If any difficulty occur in finding the ligament the canal should be split open, and in drawing the ligament out the peritoneum peels easily off the cord. On no account should the stitches retaining the ligaments in position be drawn too tight, and drainage tubes should be avoided. The gut stitches should be prepared to resist tissue action for three weeks, and four or five should pass through the ligament, binding the external oblique tendon to the subjacent structures. Two light long splints should be applied, extending from the armpits to the feet, to keep the patient from tearing the stitches by sitting up or bending the thighs upon the body; and the recumbent position should be rigidly maintained for four or six weeks according to the thickness of the ligaments.

Lastly, iodoform and wood-wool dressing will be found to give the most satisfactory results.

A large rubber watch-spring pessary should be introduced, and left in the vagina for three or four months after operation.

I shall now shortly describe a few cases that have recently come under my care:—

Mrs. M'N., æt. 27, housewife, admitted 28th March, 1893. Three years married, but has no family. Menstruation has been regular since she was 13 years old. Shortly after marriage she commenced to feel pains, especially at left groin, and to suffer from profuse leucorrhœal discharge. She complains of pain during defæcation, and her strength has become greatly reduced. She has worn many pessaries, of diverse shapes, and inserted by competent gynæcologists.

Local Examination.—Uterus is lying low down in vagina, and is completely retroflexed. There is a profuse glairy discharge from the os, which is puffy and resembles a strawberry on its surface.

Operation.—On 3rd April, with aseptic precautions, the ligaments were exposed and drawn out. The vagina, after free douching, had a watch-spring pessary inserted. Con-

siderable difficulty was encountered in finding and drawing out the right cord. On 7th April the wounds were dressed and the tubes removed. Patient was kept in bed for a month, when she was dismissed on 10th May with uterus in its proper position.

At end of six months the pessary was removed, and the uterus is at this date slightly anteflexed; while the leucorrhœa, pain on defæcation, and bad health have completely disappeared.

Mrs. M., æt. 33, housewife, consulted me on 3rd March, 1893, for complete prolapse of uterus of several years' duration. She has had three children, but latterly her general health has been wretched in the extreme, while the lack of control over the bladder prevents her entering into any society.

On 3rd March, 1893, in Miss M'Alpine's Home, assisted by Dr. M'Gregor, I drew out the two ligaments, and found the right to be very strong and thick in consistence. The left wound did not heal aseptically, but she went home in a month wearing a support. Prior to operation no support kept the uterus in vagina, and an outside pessary caused so much pain that it could not be tolerated.

After operation a large watch-spring pessary sufficed to keep the uterus in position, and this was worn for a year.

At present date the uterus remains in the vagina without support, and her local and general state is vastly improved. She has complete power over the bladder, and leucorrhœa is only slightly present.

Mrs. H. G., æt. 27, housewife, admitted to Ward 24 of the Glasgow Royal Infirmary on 31st January, 1893, with prolapsus uteri of two and a half years' duration. The organ projected 2 inches beyond vulva while in recumbent position. Has been three years married, and has had two children. The uterus came down after the first, and has remained down ever since. Has no perineal rupture, but is troubled with menorrhagia.

On 7th February both ligaments were easily found and drawn out, but a septic catgut ligature caused the wound to gape and heal by granulation. She was sent home wearing pessary on 11th March, and has been since seen at intervals. In this case the patient cannot do without a support, as the uterus threatens to descend. The cause is probably due to the septic wounds preventing firm adhesion of the ligaments to the point of fixture.

Mrs. P., æt. 40, admitted 16th November, 1893. Has almost complete prolapse with attendant symptoms of profuse vaginal discharge and loss of power over bladder. Both ligaments were drawn out and the wound remained aseptic. Was dismissed on 5th January wearing support, but merely to prevent strain on the ligaments. Six months later the pessary was removed, and at beginning of this year the os was 2 inches inside the vulva when patient was in erect posture. Has gone abroad.

Jane G., æt. 30, shop-girl, admitted 5th June, 1895. Had a child three years prior to admission, and since then has been frequently unable to work. Suffers from profuse leucorrhœal discharge, with menorrhagia, dragging pains in groin and back, and hæmorrhoids. The uterus is soft, enlarged, retroflexed, and there is great ovarian tenderness. The ligaments were drawn out on 5th June, and she was sent home on 23rd July with the wound healed aseptically, and wearing a ring pessary. At this date the uterus is slightly anteflexed, but the pelvic viscera are otherwise healthy. She has altered regularly, and the hæmorrhoids have disappeared.

Mrs. G., æt. 32, housewife, admitted 15th June, 1895, suffering from prolapse of womb of eight months' duration. The prolapse came on immediately after birth of second child, and the cervix projected about 2 inches beyond vulva while patient stood erect. On 22nd June the ligaments were drawn out, and she went home on 23rd August, 1895, with the wound aseptically healed. I examined her a week ago, and found the uterus reduced to half its former size, and lying high up in vaginal passage. She has made an excellent recovery.

Mrs. M'K., æt. 27, admitted 18th November, 1895, with retroflexion and prolapse of uterus (partial), of several years' duration.

Operation, 26th November, by semilunar incision. The ligaments were drawn out 3 inches, and the left ligament stitched backwards to anterior superior spinous process. Wound dressed 16th December, and ring pessary removed and reintroduced.

4th January.—Examination shows uterus to be in good position, and os high up in vaginal passage. Leucorrhœa, backache, and dragging pains have disappeared, and her general health has become much improved.

Dr. Balfour Marshall, in considering the operation of shortening the round ligaments for the treatment of prolapsus

uteri, said he would like to know the later after-histories of the cases to judge of its true value. He did not think it a good method of treatment. In the unimpregnated uterus the round ligaments are of little or no use in preventing prolapse, although at full time labour they play a most important part in preventing excessive elevation of the fundus uteri, thus avoiding excessive stretching of the lower uterine segment.

The utero-sacral folds are the most important ligaments, as in the erect posture they suspend the uterus, passing as they do from near the isthmus upward to the second sacral vertebra. Prolapse is to be regarded as a hernia, or, as Dr. Berry Hart puts it, a displacement downwards of the entire displaceable portion of the pelvic floor past the entire fixed portion—*i.e.*, of those tissues lying in front of the anterior rectal wall as far as, and including, the lower part of the bladder. Treatment should, therefore, aim at giving support from below, and if operation is indicated the best means is by a colpoperineorrhaphy, combined with if necessary a colporrhaphy anterior. If certain of these cases should afterwards require it, a small pessary could be worn and retained, when previously no instrument may have been able to prevent the prolapse from coming down. Dr. Adams's cases show that a pessary is required for months after his operation is done, which still further reduces any value his operation has. Dr. Adams's operation is, however, more justifiable for replacing movable retroflexions requiring operation to retain them in anteflexion.

The symptoms mentioned in Dr. Adams's cases pointed to endometritis and endocervicitis, and treatment of these combined with rest in bed might have cured the condition. Dr. Balfour Marshall quoted cases where marked retroflexion was present and yet caused no symptoms whatever, and other cases where the cure of the endometritis and endocervicitis by curretting and suitable after-treatment with rest in bed had led to cure of symptoms and even to a spontaneous reposition of the uterus to a position of anteflexion, especially after the enlarged uterus had become reduced in size.

He thought that other methods of treatment should first be thoroughly tried in cases of retroflexion, before resorting to such an operation as shortening of the round ligaments, even although it was free from risk.

Dr. Munro Kerr asked if a ring pessary was always the form used by Dr. Adams, and was answered in the affirmative. He also asked Dr. Balfour Marshall how the diagnosis of

retroflexion of the uterus was made if retroflexion could exist without symptoms, to which Dr. Marshall replied by quoting a recent case where the patient, having complained of pain in the vulva, an examination revealed abrasion of the labium majus and a retroflexed uterus, without any symptom of the latter condition.

Dr. W. L. Reid said the results of the operation were, in his experience, of a mixed character. One patient left the hospital with a double hernia and a cellulitic deposit; she caught cold and developed acute bronchitis, and the constant coughing tore the ligaments away from their moorings. In five cases out of eight the operation was successful as regards restoring the uterus both in prolapse and retroflexion. If the case cannot be treated with pessaries, shortening of the round ligaments is an operation to consider. In patients not able to rest and wear a pessary the operation may fail, as the scar tissue is not firm, and a pessary is required to keep the uterus in place for a time.

Dr. Adams thanked the members for patiently hearing him, and for the criticisms offered.

III.—SLOUGHING OF THE BLADDER AFTER PROTRACTED LABOUR.

By Dr. Oliphant.

A detailed account of the symptoms that characterised the case was read from the case-book, and a brief account was given of Dr. Sutherland's examination of the pathological specimen, which indicated necrosis of the wall of the bladder.

IV.—LIVER WITH ABNORMALLY SMALL LEFT LOBE.

By Dr. T. K. Monro.

This was taken from a man aged 50, a labourer, who died of phthisis. The organ weighed 50 oz. when fresh, and its tissue was practically healthy in appearance. The following are some of the measurements (in the fresh state):—

Whole liver, antero-posteriorly, . .	$6\frac{3}{4}$ inches.
Whole liver, transversely, . . .	9 ,,
Left lobe, antero-posteriorly, . .	$2\frac{1}{4}$,,
Left lobe, antero-posteriorly (including some smaller masses of hepatic tissue),	$3\frac{3}{8}$,,
Left lobe, transversely, . . .	$1\frac{1}{2}$,,
Right lobe, transversely, . . .	$7\frac{1}{2}$,,

V.—Ectopy of Liver, Omentum, and Bladder.

By Dr. George Bell Todd.

The child was born on the 6th July, lived fifteen days, and died on the 21st July, 1894.

The photograph shown represents the *post-mortem* appearances twenty-four hours after death. The positions of the liver and omentum are well shown; also the interior of bladder, in the floor of which indications of the valve-like openings of the ureters can be seen. The sloughs on omentum and surface of liver show lightish-grey in colour, as also patches of slough on the edges of the abdominal cleft.

On flicking the exposed mesentery with a camel-hair pencil moistened with castor oil, evacuation of the child's bowels took place in from five to seven minutes afterwards. In every instance the motions were fluid, and yellowish-green in colour. This instance in the human being confirms the experiments carried on by Rutherford on the lower animals—viz., stimulating the exposed mesentery with various active principles of cathartic remedies.

Meeting VIII.—17th January, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Sac of Spina Bifida, and Patient from whom it was Excised.

By Dr. J. H. Nicoll.

The patient, an infant girl of 5 months, was sent to me in July last. She had in the lumbar region a spina bifida tumour of the size of a Tangerine orange, and measuring about 4½ in. round the base or neck. Over its dome the skin was extremely thin and adherent to the meningeal sac, being more or less translucent in diffuse daylight, but in no way broken or ulcerated. The sac had a distinct expansile impulse on the child's making any effort. There was no hydrocephalus, and no paralysis of legs or bladder.

On 27th July, the child having been anæsthetised, I made an oval incision over the sac with its long diameter vertical.

By means of this, two lateral flaps of skin were raised, one on either side, and the sac, with adherent to its dome the piece of skin included in the oval incision, isolated down to its neck, as this entered the aperture formed by the ununited bony laminæ. The sac was opened and found to contain fluid and two nerves, one coursing along either side. These were detached and pushed into the spinal canal. The neck of the sac, which admitted the tips of two fingers, was then constricted by a temporary ligature, and the dome removed by scissors. The flaps formed by the remainder of the sac were, after removing the temporary ligature, stitched together in the middle line. Over these the flaps of skin were similarly united, and the wound dressed without drainage.

For a week the infant was nursed on its face, with the back kept uncovered, to avoid any chance of soiling the dressing by urine or fæces. At the end of that time the wound had united by primary union, and at the end of a fortnight the patient left the nursing home well.

The specimen represents the dome of the sac with the adherent portion of skin removed with it.

A considerable number of cases of successful excision of spina bifida sacs have recently been recorded, and it seems not improbable that in a number of suitable cases excision may be destined to replace iodine injections, as being more certain and, with proper aseptic precautions, probably less risky.

Dr. Newman said the case was interesting, and appeared to have been eminently suitable by its low-lying situation for dissection of the sac. Morton's treatment was applicable to cases lying higher in the vertebral column, and the deaths which sometimes followed draining off the fluid did not discredit the operation.

Dr. W. L. Reid said he had seen several cases; all had been treated by Morton's method, and the success had been fair.

II.—SPECIMENS FROM SEVERAL CASES OF OPERATIONS ON THE INTESTINES.

By Dr. J. H. Nicoll.

Intestinal surgery has of late occupied so large a share of professional interest that probably every member of this Society has more or less experience in intestinal operations or in the question of diagnosis preceding operation. With a personal experience which must be so much more limited than that of senior members, I bring forward these cases with the

object of eliciting expressions of opinion on points on which collective opinion has not as yet crystallised. During the past two years I have had under my care eleven cases of more or less acute intestinal affections (exclusive of hernia) in which the question of surgical interference has been pressing, and have performed abdominal section in seven of them. I propose to bring before the Society to-night three of these cases as illustrating and raising certain points.

Two of these cases form in every way a striking contrast:—

Case I.—That of a gentleman, æt. 58, living near Glasgow, who, on the morning of 6th September last, having previously been in his usual good health, felt as if he "was going to have diarrhœa," but passed only a scanty motion with much straining. During the day he went to Edinburgh, and while returning in the train in the evening he had a recurrence of the feeling of impending diarrhœa, accompanied by griping pain. On reaching home, being unable to pass any motion, notwithstanding the feeling of urgency, he took a seidlitz powder and went to bed. During the night the pain became more severe and accompanied by a tendency to sickness, and he sent for his doctor, who took prompt measures, by enemata, to clear out the bowel, but without satisfactory result. In the morning his doctor, who had diagnosed the case as probably one of acute intestinal obstruction, wired to Glasgow for a consulting physician and for myself. We saw him before 11 A.M., and agreed in the diagnosis. During the next two hours repeated attempts were made to relieve the bowel by enemata with the long colon tube, but without effect, and the patient's general condition having become less satisfactory, we returned at 4 o'clock, and at once operated.

On opening the abdomen in the middle line, a quantity of flaky sero-pus, with distinct fæcal odour, welled out of the wound, and the intestines were found matted together with the same purulent exudation. The appendix was so free from adhesions that, on first putting my hand on it, I thought it was healthy. Closer examination, however, showed that near its base was a long thick band of adhesion running towards the middle line of the posterior abdominal wall, and constricting a loop of intestine behind it; and that near the extremity of the appendix was a perforation. The band was divided, and the appendix removed in the usual way, when it was found that the whole appendix was thickened and covered with tough fibrous inflammatory tissue, and that the perforation had occured as the result of ulceration over a fæcal concretion of the size and shape of a clove. The peritoneum was sponged

out with carbolic solution (1 to 200), and closed by sutures with very free drainage. The patient, who had been considerably collapsed, rallied well from the operation, but died at the end of twenty-four hours from peritonitis and collapse.

Dr. Sutherland has kindly made a section of the fæcal concretion, to ascertain its nature, and it and the appendix are here.

CASE II.—That of a young lady, æt. 24, who had had for several weeks some irregularity of action of the bowels and attacks of colicky pain. On 2nd October last, while walking out of doors, she had a sudden and collapsing attack of abdominal pain, and got home with difficulty. Stimulants and hot fomentations gave relief, and after two days in bed she was able to go about again. The following day the pain returned, and she summoned her doctor. He found the temperature somewhat raised, pain and some tenderness over the lower part of the abdomen, but no special intestinal symptoms, the bowels acting fairly regularly. This condition persisted for three days, at the end of which time a swelling could be made out in the hypogastrium, which was very tender. On the 12th I was asked to see her in consultation. She had then a temperature of 100·5°, but otherwise did not appear very ill. There was a distinct tender tumour extending from the umbilicus to the pubes, and into the right iliac region, which I thought probably perityphlitic in origin.

Three days later I operated. On opening the abdomen from the umbilicus downward in the middle line, I at once entered an abscess cavity containing fœtid brownish pus, but no gas. Its anterior wall was the abdominal wall, and its posterior was formed apparently of coils of intestine and omentum matted together by adhesions. A finger passed into the vagina and another into the abscess cavity met, with apparently little except the vaginal wall intervening. The cavity was gently swabbed out with dry sterilised gauze, and packed with a large quantity of iodoform gauze. The edges of the parietal wound were approximated by strapping without sutures. The patient was put upon milk diet and a mercurial laxative. During the next ten days these were continued, the packing being twice changed, and the temperature remaining practically normal after the first two days. At the end of ten days I opened up and widely retracted the edges of the parietal wound. The posterior wall of the abscess now came well forward, and there was evident a perforation in a coil of small intestine, surrounded by pouting granulations, and of the size of a small bean. This I gently pulled into the parietal wound, avoiding tearing the sur-

rounding adhesions. I then pared the edges with scissors, and united their serous surfaces by two rows of Lembert sutures. The packing was renewed in smaller quantity, and the parietal wound partially sutured and strapped. After a few days the packing was withdrawn. At the end of five weeks, from the date of first opening the abdomen, the patient was allowed to get up. She is now able to be out, and is feeling well.

Dr. Leslie Buchanan has kindly examined the tissues pared from the edges of the perforation, but has found no evidence of tubercle. There are sections under the microscope.

In the strongly contrasting histories of these two cases, the difference in termination appears to depend mainly, if not entirely, on one circumstance—viz., the presence or absence of protecting adhesions limiting and confining the extravasated material. In Case II extravasation was probably going on for at least three days before medical aid was sought, and yet the patient, owing to the presence of limiting adhesions, makes a perfect recovery. In Case I, notwithstanding the facts that operation was undertaken within probably twenty-four hours of the first extravasation, and that the perforation was a small one, the abdomen is found already full of sero-pus, and the patient's condition desperate, if not practically hopeless.

In the recent work done in intestinal surgery, the importance of preserving limiting adhesions in every possible way has been increasingly recognised. In such a case as Case II, there will probably be little difference of opinion in regard to the best course to be followed—viz., to treat the case by two distinct operations. On the first occasion the pus, if found encapsuled by adhesions, is simply evacuated, and the cavity packed, no attempt being made to find the lesion. Should extravasation be accompanied by obstruction, as, for instance, in gangrene of a loop of gut caught under an adhesion band, the lesion must be sought. Even then opinion is tolerably unanimous that the best course is to pull the diseased intestine to the surface, pack the cavity of the abscess, open the intestine above or at the site of lesion, forming an artificial anus, and leaving all measures for radical treatment of the intestinal lesion itself to the second operation, when the patient's general condition is better, the intestine less inflamed, and surrounding parts less septic. In such a case as Case I, where from any cause—obstructive, or perforative, or both—there is widespread extravasation, it may still be in many cases good practice to treat the case by two operations—that

is, on the first occasion cleanse the peritoneum and secure the injured intestine in the parietal wound, to be dealt with on the second occasion. In the first of the two cases brought forward, however, the nature of the lesion permitted its being dealt with at once.

In the treatment of both of these contrasting classes of cases, as illustrated by the two before the Society, there is an important question in treatment on which surgical opinion is at present pretty sharply divided, and on which discussion may be instructive. That question is the question of cleansing the abdomen—Ought this to be done by douching or by swabbing? In Case II the advocates of douching would maintain that thorough cleansing of an irregular abscess cavity by swabbing with gauze or sponges is impossible, and that douching affords the only means of cleansing out the remote corners. The advocates of swabbing, on the other hand, believe that no advantages which can possibly be claimed for douching can compensate for the risk of removing or tearing some soft adhesion, and thus permitting leakage into the general peritoneal cavity. Similarly in Case I, the advocates of douching would hold that any adhesions there may be are septic, and also too soft to be of protective value, and that free douching offers the best chance of checking the infective peritonitis; while the advocates of swabbing argue that douching may be doubly harmful. They believe that if the douche used be a germicidal solution—carbolic or mercury —it defeats its own object by destroying the delicate peritoneal endothelium, and that in any case, whether it be antiseptic or aseptic (boiled water), its effect is to carry the septic material further on, and lodge it in remote corners of the complicated peritoneal sacs, into which it had not previously penetrated.

CASE III.—That of an elderly man admitted to the Western Infirmary in September last with symptoms of acute intestinal obstruction. Professor Macewen being absent on holiday, I saw him a few hours after admission and found the abdomen distinctly tender, as if from peritonitis, persistent vomiting, and a history of constipation of several days' duration. He was said to have had a right inguinal bubonocele which had been reduced before I saw him. Having failed to in any way relieve him by enemata, and the abdominal tenderness increasing, I operated sixteen hours after his admission. On opening the abdomen in the middle line I found a coil of small intestine, of about 5 in. in length, in a condition of

commencing gangrene—much thickened, blackish, covered with flaky adhesions, and with several greyish breaks in its peritoneal coat. I resected this portion and united the ends, closing the abdomen after inserting a glass drainage-tube. After the operation the vomiting ceased, but the symptoms of peritonitis rather increased. Twenty-four hours after the operation I reopened the abdomen and pulled out the sutured intestine and found it tight, and then sponged out and reclosed the abdomen. The patient died at the end of forty-eight hours from peritonitis. The resected portion of gut shows extensive greyish sloughing of the mucous and submucous coats, and similar, but less extensive, changes in the outer coats. I feel that I lost this patient, first by delaying the operation for twelve hours, and then by attempting to make the operation too immediately complete—*i.e.*, by replacing the sutured intestine in the abdomen and draining merely, instead of partially isolating the sutured loop by packing for a few hours, seeing that peritonitis had already commenced before the abdomen was first opened.

The portion of the intestine containing the united cut ends is here. It has been carefully tested and found tight. The method employed in uniting the ends was as follows:—About a quarter of an inch of the mucous coat of the distal end was detached and cut out with scissors. The distal end was placed over, or outside and surrounding, the proximal, so that the bared muscular coat of the distal was in contact with the peritoneal coat of the proximal for a quarter of an inch. The two ends of the intestine were then fixed together in that position by two parallel rows of suture penetrating the entire thickness of the wall of the outer or distal tube (*i.e.*, the peritoneal and muscular coats—the mucous and submucous having been removed), but penetrating the two outer (peritoneal and muscular) coats only of the inner or proximal tube. The first of the two rows of suture is near the line of contact of the free edge of the inner tube with the edge of the divided mucous coat of the outer tube. The second row is close to the free edge of the outer tube. This procedure I had frequently practised on the cadaver before carrying it out in this case, and I have found that it can be done either by interrupted or by continuous suture. Continuous suture is easily and rapidly done by means of an ordinary domestic sewing needle, the stitch being that which I believe is known amongst dressmakers as a small "basting" stitch. In any case in which the walls of the intestine seem unusually thin, the line of union, as made by these two rows of suture,

may be rapidly strengthened by a row of continuous Lembert suture loosely put in over the others, producing some folding in of the line of union. But this could be but seldom required. I believe this method of uniting the intestine gives quite as secure a union as any of the methods in use, and that it avoids the extra wound of the intestine and wide fæcal soiling of the serous coat involved in Mansell's method. Finally, I find that I can unite divided intestine by this method in less time than I can by the Czerny-Lembert method, and that in doing it I am much less dependent on assistance.

[In the discussion which followed the description of these cases, Mr. Maylard pointed out that Robinson, of Toledo, had united intestine by a somewhat similar method. Robinson, it would seem, has accomplished union of divided intestines by two methods—viz., by a method of invaginating and uniting serous to serous coat, and also by a method, which he has successfully carried out in the dog, of uniting the muscular coat of the one end, bared of its mucous coat, to the serous coat of the other, thereby embodying the principle of the operation I have carried out. Of Robinson's first method I was aware; of his second I was not, and have to thank Mr. Maylard for the information. It would seem that Mr. Jessett, also unaware of Robinson's work, has employed the same principle. Both Robinson and Jessett attained their object by suturing into the proximal end a rigid tube (Robinson, one of rubber; and Jessett, one of bone), and by uniting the intestinal ends by means of a single row of sutures. The operation I have described, which it seems is a modification of Robinson's, is simpler, in that there is no tube employed, and gives, I venture to think, a more secure union.]

Mr. Maylard said they had all listened with pleasure to the cases. It was refreshing to have the failures as well as the successes recorded. The first case was one of general peritonitis, and the chances of failure in operating were 99 to 1. He knew of only three cases of recovery where the operation had been performed in the presence of general peritonitis, and the lesson taught by failure seemed to be that the surgeon should not press the operation, but wait until the operation was pressed upon him. The second case was quite different —the abscess had burst into the peritoneal cavity, but there were adhesions shutting off the abscess cavity from the general peritoneal cavity, and the correct treatment was, as indicated, to evacuate, dry and pack with iodoform, and close the wound. If the cavity could be dried sufficiently, the wound could be

safely closed. As to the suture, he did not think it was original, as something very similar had been described by Robinson some years ago.

Dr. Newman thanked the author for his paper. He said the first case was common, and the treatment in the second case was the natural method of curing. He had treated two cases of perforation and abscess at the Royal Infirmary; in both he opened freely and washed out thoroughly; one patient recovered, and the other died from extravasation into the abdominal cavity. In a third case last summer, where perforation followed an inguinal hernia, the abscess was opened, and the patient recovered without further procedure.

III.—ANOMALOUS CONDITION OF THE OCULAR MUSCLES.

By Dr. Ernest Thomson.

Dr. Thomson read a paper on the above subject, and described the methods employed in investigating such anomalies.

Meeting IX.—31st January, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—SPINA BIFIDA OCCULTA.

By Dr. T. K. Dalziel.

Dr. Dalziel showed a specimen of the above, and the patient from whom it was removed.

M. D., æt. 11, was admitted to Ward XX of the Western Infirmary on 20th September, 1895. She had suffered since infancy from incontinence of urine and fæces, this becoming more troublesome during the past few years.

Examination revealed a well-marked swelling over the base of the sacrum, like a fatty tumour, about the size of half a large orange. A deficiency of the roof of the sacral canal could be felt under the mass. There was complete anæsthesia over the buttocks, perineum, and posterior half of the external genitals—the parts supplied by the third, fourth, and fifth sacral nerves. No hair or pigmentation was present over the tumour.

In view of the known tendency of such cases to become worse, it was determined to remove the fatty mass and

liberate the nerves implicated—viz., third, fourth, and fifth sacral. An incision 3½ inches long was made in the middle line, the skin reflected, and the fibro-fatty mass freed from its attachments, and its connection with the theca, which was embedded in it as a finger-like process, carefully separated. The theca was then opened, and, as the sacral nerves were found to be adherent to its inner surface, the whole was returned into the sacral canal after cutting away the surplus theca and suturing. Flaps of the sheaths of the erector spinæ muscles were then taken from each side, turned over, and sutured to close the defect in the neural arch. A large quantity of cerebro-spinal fluid escaped during the operation, but with no evil result.

The patient made an uninterrupted recovery from the operation, and the wound healed by first intention.

Since the operation to the present date, five months after, there has been more or less continuous improvement, interrupted occasionally by intercurrent illnesses, such as gastric, intestinal, and lung affections, during which bladder and rectum functionate less perfectly.

During the last fortnight there has been complete continence of both urine and fæces, and perfect consciousness when the rectum and bladder are full. The anæsthetic area has shrunk to a small zone round the anus, 1 in. on the one side and 1½ in. on the other; and, as the improvement has been on the whole continuous, it may be anticipated that further recovery will occur, and her life be rendered tolerable.

The following is a description of the specimen from the Pathological Journal, vol. xxi:—

"The specimen consists essentially of a mass of adipose tissue measuring 6·5 by 5 cm., and with the greatest thickness (centrally) of 1·5 cm. On its deep surface there is a distinct depression, 1·3 cm. in depth, 2·2 cm. in length, and 1·7 cm. in breadth. This admits the first phalanx of the index finger. It is lined by an incomplete layer, partly fibrous, but mainly composed of adipose tissue."

Dr. Dalziel expressed his gratitude to Mr. Thorburn of Manchester, to whom he was indebted for much of his information in regard to the treatment of such cases.

II.—PERFORATING ULCER OF FOOT.

By Dr. T. K. Dalziel.

Case I.—A. A., aged 47, three years ago began to suffer from an ulcer of the heel. For some years previous the

affected leg had been swelled and not so useful as the other, rendering walking practically impossible. Twenty years ago she fell from a height, and sustained a severe twist of the ankle and a blow on the outer side of the leg below the knee.

The ulcer presented the appearance of a cleft on the plantar surface of the heel extending to the os calcis, but separated from the bone by a layer of fibrous tissue. The margins of the ulcer consist of heaped-up epithelium. There has never been much discharge. The outer surface of the leg and foot, including three and a half toes, is anæsthetic. Considering the utter uselessness of the foot, amputation was deemed advisable, and was accordingly done, taking the inner sensitive flap in preference to Syme's heel flap. Wound healed by first intention, and patient returned home in three weeks.

The following description is taken from the Museum Catalogue:—

"The specimen shows the plantar aspect of the heel, and in it, nearly in the middle, there is an opening measuring 13 by 4 mm. It passes somewhat deeply into the tissues, and on section the entire extent of the sinus was found to be 13 mm. It is directed towards the middle of the os calcis, and its bottom is separated from the bone by a dense fibrous tissue, measuring 1 cm. in thickness, which fills up the entire concavity of the inferior surface of this bone. The lateral walls of the sinus are covered with a thick epidermis similar to that of the heel, but even thicker. Its floor, however, presents no such covering, and there is, to the naked eye, very little appearance of activity.

"Viewed from the surface, the ulcer is surrounded by a zone of altered epidermis, having a diameter of about 4·5 cm. There is, further, a furrow passing outwards from the perforating ulcer, and extending in a branching fashion to the outer aspect of the foot where the epidermis is divided up by many grooves, and has in some places a warty character.

"Examination of the nerves at some distance above the visible lesion shows marked thickening of the perineurium around the individual bundles. In addition, the nerve stems are accompanied by many arteries, which show a very striking endarteritis obliterans. Thickening of the intima is visible even in the dorsalis pedis and external plantar arteries."

Case II.—M. S., æt. 15, when 4 years of age suffered from an attack of measles, from which she recovered with defective sensation and muscular power in the left leg. Four months before being seen she suffered from ulceration under the fifth

metatarso-phalangeal joint, and, at a later date, of the outer side of the little toe, from which bone escaped. These slowly healed, and another ulcer formed to the inner side of the first. There has been no pain or other abnormal sensation complained of. The whole of the left leg had diminished sensibility as compared with the other, while the anterior half of the sole and 2 inches of the outer border of the foot are anæsthetic. On the left side the knee-jerk is present, but not so marked as on the right side. The patient could not stand on the affected foot alone.

The ulcer measured about three-quarters of an inch in diameter, and extended deeply through the tissues of the sole, but not affecting the bones. Margins consist of heaped-up epithelium. Amputation was performed through the middle of the metatarsal bones, all the sensitive skin being used as a flap, while the anæsthetic sole and outer border were removed. The dorsal and plantar tendons were united over the end of the bone section, giving, as the patient now shows, a remarkable power of flexion and extension. The wound healed by first intention, and the patient was dismissed on the sixteenth day after operation.

III.—DIFFUSE PAPILLOMA OF THE RECTUM REMOVED BY OPERATION.

By Dr. T. K. Dalziel.

The specimen consisted of the mucous membrane of the rectum, which, in the somewhat shrunken condition, measured 5½ inches in length. The whole of the surface was covered with a thick layer of filiform papilloma, which had caused nearly complete obstruction. This specimen was removed from a patient, 58 years old, who for two years had suffered from increasing constipation, hæmorrhage, and continuous discharge of watery fluid. Occasionally partial prolapse of the mucous membrane took place.

An antero-posterior incision through the anal sphincter enabled the hand to be introduced into the rectum, and the affected portion of the bowel to be dragged down till the upper margin of the disease was exposed, three-quarters of an inch beyond which the healthy mucous membrane was divided, and from thence the papillomatous membrane stripped downwards from the muscular coats of the bowel to the margin of the anus. Comparatively little blood was lost, as the vessels were ligatured on division. The bowel, denuded

of mucous membrane, was then reduplicated on itself in the form of an intussusception, and the free edge of the mucous membrane stitched to the margin of the anus, and the anterior and posterior incisions sutured. Healing was somewhat interfered with by the passage of numerous large and very hard scybalous masses; but now, at the end of a year, the patient is in vigorous health, with full control over the rectum, and, according to his statement, feeling as well as ever he did in his life. There has been no appearance of recurrence.

Dr. Dalziel remarked on the rarity of the affection, and pointed out the advantages of removing the mucous membrane only, and the facility in operating after free perineal incisions.

IV.—CONDITION OF KNEE-JOINT AFTER RECOVERY FROM SUPPURATIVE ARTHRITIS.

By Dr. Rutherfurd.

Dr. Rutherfurd showed a specimen, consisting of the tibia and lower end of the femur, from a case of acute osteo-myelitis of the tibia in a boy, aged 14.

Patient was admitted to Ward 18, Royal Infirmary, on 25th December, 1895, having been ill for a fortnight, and that night a subperiosteal abscess of the tibia was laid open. Two days later the upper two-thirds of the diaphysis were gouged out, and part of the upper epiphysis. The knee-joint, which contained pus, was drained for about a week, and thereafter the wounds healed.

Patient was also the subject of osteo-myelitis of the upper end of the left humeral diaphysis, without the formation of any free pus in the soft tissues.

Death occurred on 30th January, 1896, or about seven weeks from the onset of the disease.

The cavity in the tibia was lined almost throughout with healthy granulations, and the operation seemed to have reached the lowest extent of the disease in the diaphysis. Various granulating centres were present in the remains of the upper epiphysis, where the disease seemed to be in process of cure. The synovial membrane of the knee-joint showed at parts a slightly excessive vascularity, but was everywhere smooth, soft, and glistening, presenting no adhesions within the joint; the only exception to this being where it had become adherent over a perforation in the head of the tibia, where infection of the joint had taken place from the bone. A few films of fibrinous material lay free in the joint, as if representing inspissated exudation.

As regards the cause of death in this case, while no secondary lesions were found in any of the viscera, and while the suppuration in the wound of the tibia was reduced to a minimum by the operation, which cleared out so much of the infected tissue, it would seem right to conclude that the patient died of septicæmia. His mental condition got steadily worse from the time of his admission, and his temperature, though it fell after the operation, never came down to normal. The question remains an open one, whether in spite of the satisfactory appearance of the wound in the tibia the condition of the patient would not have been improved by amputation.

Mr. H. E. Clark said this case showed how local antisepsis might be too late to prevent general infection. A fair local result was obtained, but meanwhile the constitution became infected, delirium supervened and after three weeks' duration ended in death.

V.—THREE RENAL CASES.

By DR. NEWMAN.

CASE I.—*Movable Kidney causing severe pain, cured by Nephrorrhaphy.*

The first case was that of a woman, æt. 32, who suffered from severe symptoms arising from extreme mobility of the right kidney.

The onset of her ailment was attributed to a fall six years ago, by which she struck her right side against a stone. Following this injury pain was complained of chiefly in the back, the right hip, and the right leg. Since the accident she has had five children, and always while pregnant the pain has been very severe; she says that the pain has steadily increased with each successive pregnancy, so that now, while never free from pain at any time, it is much more severe at one time than at another. During the exacerbations of pain, which are now frequent, she becomes very sick, but never vomits. The pain constantly present is of a dull aching character, but is frequently replaced by severe paroxysms resembling nephritic colic, which may be induced by sudden movements of the body or by manipulation of the kidney. These more or less sudden attacks are not associated with any alteration in the quantity of urine, or in the specific gravity of that excretion. The patient is not neurotic, and the presumption is that the pain is due to dragging upon the renal vessels and nerves rather than to torsion, there being no

evidence of either transitory hydronephrosis or temporary suppression of urine.

On examination the right kidney is very easily felt, and found to be freely movable, the excursion of movement ranging from the lower edge of the liver, just inside the gall bladder, to within 3 inches of the symphysis pubis; and, at the level of the umbilicus, the kidney can be pushed an inch beyond the middle line, as shown in Fig. 1.

On the 2nd January, 1896, nephrorrhaphy was performed

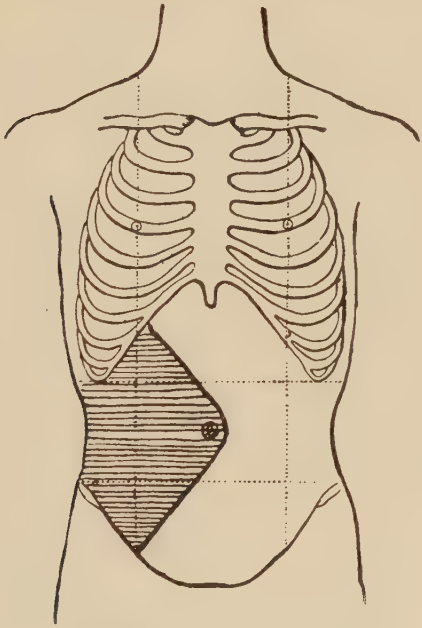


FIG. 1.

The radius of movement of the kidney is shown by the horizontal lining in the diagram.

in the usual way, with one exception. On exposing the adipose capsule it was found to be very large and unusually firm in consistence, so that, besides suturing the kidney to the parietes, a large portion of the loose adipose capsule was excised, in order to fix the organ more firmly in position.

The only other respect in which the case was peculiar was the circumstance that, at the time of operating, she was in her third month of pregnancy, and the question to decide was whether to postpone operating till after delivery or to fix

the kidney at once. Considering the great severity of the attacks, and the frequency of them, it was determined to do nephrorrhaphy at once rather than delay. The patient made an excellent recovery, she suffered absolutely no general disturbance, and was able to resume her household duties within a month.

CASE II.—*Right Movable Kidney, with Transitory Hydronephrosis from Kinking of the Ureter, cured by the operation of Nephrorrhaphy.*

C. G., æt. 34, single, was admitted into the Glasgow Royal Infirmary on the 1st November, 1895, complaining of a dull aching pain in the right loin, which commenced five years ago, and from then till now has steadily increased both in frequency and in severity. This pain was described as being almost constantly present; but over and above it she suffers frequently from paroxysmal attacks of severe colicky pain, which sometimes assumes a very acute character.

During the acute attacks the patient was herself able to feel a distinct swelling in the lumbar region, which on pressure was very tender. These acute paroxysms of pain occurred only at intervals of several months at the onset of the disease, but as time passed they have become more frequent. At the present time they recur nearly every second day. The pain increased more gradually than it was relieved. Her own description of the attack was as follows:—

"Suppose the pain begins to increase about 1 o'clock in the day, it steadily becomes more severe until about night (6 or 7 o'clock). At the same time the swelling in the loin gradually enlarges, and sometimes extends beyond the middle line in front; as the swelling increases so also does the pain." During the period of enlargement the urine was scanty and highly coloured, and of high specific gravity. Suddenly a copious flow of pale-coloured urine took place, the swelling subsided, and the pain was suddenly diminished.

While the hydronephrosis was accumulating the patient was generally compelled to go to bed; but very soon she was unable to lie in the recumbent posture, and required to sit up with the thighs flexed on the abdomen, and the chest thrown well forward in order to relieve pressure.

On examination of the abdomen between the attacks, the walls were observed to be very flaccid. When the patient lay upon her back a distinct bulging was observed in the lumbar region on the right side, which on palpation was found to be quite soft, but on firm pressure pain was elicited over

a considerable area, extending from the crest of the ilium to the ribs, and as far forward as the middle line. The amount of swelling varied greatly from time to time. When she was suffering from an attack of pain the swelling always increased, and the pain was relieved by a copious flow of pale urine.

Since admission to the hospital the worst attack occurred on the 12th November. The paroxysms of pain began at 5 A.M., and continued until 10 P.M. Towards the end of that

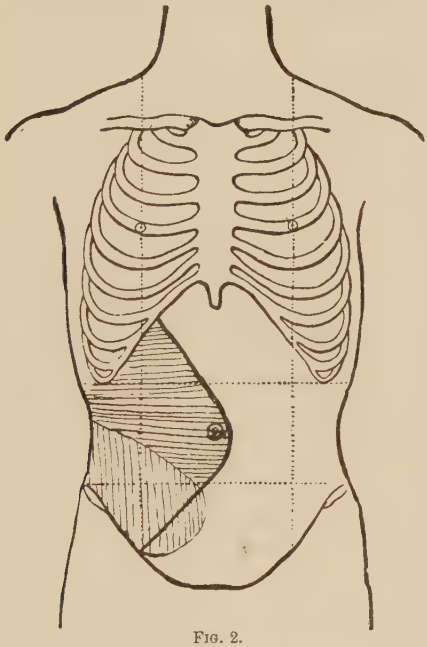


FIG. 2.

The radius of movement of the right kidney is shown in the diagram by the horizontal lining, and the space occupied by the transitory hydronephrosis by the perpendicular lining.

period the patient suffered agony of pain, so that morphine required to be administered. Relief came about 10 P.M., accompanied by a copious flow of urine measuring 1,000 c.c., the first quantity passed since 6 A.M.

During the paroxysm of pain the swelling could be felt about 2 inches to the left of the middle line, between the umbilicus and pelvis, and extending downwards in the right iliac fossa to within 1½ inch from Poupart's ligament. During the intervals between the attacks of the pain the right kidney could be found to be distinctly movable, with the excursion

ranging from the position of the gall-bladder above to within 4 inches of the symphysis pubis below, and at the level of the umbilicus the kidney could be pushed 1½ inch across the middle line. Beyond the condition of the kidney the patient was absolutely healthy. The following note of the characters of the urine before, during, and after an attack is of interest:—

Date.	Quantity in oz.	Sp. gr.			
1895.					
Nov. 13, 3 P.M.	13	1016	Acid.	No albumen.	
,, ,, 9 P.M.	11	1014	Do.	Do.	Pain set in.
,, 14, 11 P.M.	40	1007	Do.	Do.	Pain relieved.
,, 15, 6 A.M.	6	1010	Do.	Do.	Do.
,, ,, 2 P.M.	13	1016	Do.	Do.	Do.
,, ,, 9 P.M.	7	1016	Do.	Do.	Do.

At midnight on the 13th November pain was very severe, and continued so till 11 P.M. the following day, when 40 oz. of dilute urine were passed.

This case was clearly one of transitory or intermittent hydronephrosis, due to torsion of the ureter when the right kidney became displaced. The course of events noticed was sudden suppression of urine, almost immediately followed by paroxysms of severe pain, which continued and increased in severity until suddenly relieved by the copious flow of dilute urine.

Nephrorrhaphy was performed on the 26th November, and since that date there has been no recurrence of the pain, nor has any accumulation of urine been observed in the pelvis of the kidney. The main point in the operation was to fix the kidney as high up as possible, and firmly, so as to stretch out the tortuous and elongated ureter.

In this case the operation was completely successful, and the patient is now (June, 1896) quite well.

CASE III.—*An Unusual Case of Pyonephrosis operated upon by Nephrotomy with good result.*

D. T., æt. 41, a gardener, was admitted into the Glasgow Royal Infirmary on 10th October, 1895. On admission he presented the physical signs of a large accumulation of fluid in the right kidney, but the symptoms beyond local swelling and consequent pressure were not characteristic of pyonephrosis.

During his residence in the hospital the swelling in the right renal region varied greatly in amount, and on one

occasion, while the patient was under chloroform, the swelling completely disappeared, but soon afterwards reaccumulated. The facts relating to this occurrence I shall describe in the history of the case. On inquiring into the incidents of the present attack, I found that seven or eight weeks ago, about the middle of August, he suffered from indefinite, and sometimes prolonged, attacks of shivering, followed by pain in the kidney. He attributed this attack to a cold contracted while at his work, but he soon found that he was losing flesh, that he felt weaker, and that his appetite was gradually becoming impaired. He also felt heavy and out of sorts, and, what was very unusual, had no energy for nor interest in his work. Three weeks previous to admission he was suddenly seized with a severe pain in the hypochondrium. It was tearing in character, came on in paroxysms, and radiated across the abdomen from the right renal region, but was not specially severe in the line of the right ureter. This pain continued for three days, and then gradually died away, but was followed by an attack of severe vomiting, and the motions contained a large quantity of tarry matter. He first noticed the swelling in the right lumbar region just as the pain was disappearing on the third day, and shortly afterwards he began to be troubled with difficulty in micturition; there was no hæmaturia, but occasionally he noticed flaky matter floating in the urine.

Since the onset of the attack the patient has considerably emaciated, and his general health has become greatly impaired. Physical examination of the abdomen showed the walls to be rather retracted elsewhere than in the right hypochondrium, where a distinct swelling was thereby rendered more apparent to the eye, and on palpation a rounded smooth tumour was felt immediately underneath the margin of the liver, and extending downwards almost to the crest of the ilium, and forward to within an inch of the middle line. With the left hand below the last rib the swelling could easily be pushed forwards against the right hand in front, and a distinct sense of fluctuation could be readily elicited.

Percussion gave an area of dulness corresponding in situation to the swelling just described. On light percussion the dulness over the swelling was continuous with that of the lower margin of the liver, but on heavier percussion a tympanitic band could be made out between the two. The upper margin of the liver was between the sixth and seventh ribs, and the cardiac dulness was much obscured. The parietes of the thorax were poorly clothed, and the intercostal spaces were abnormally wide. The supraclavicular depressions were much

exaggerated, but physical examination of the chest did not reveal the presence of any organic change. The cardiac sounds were feeble, but free from murmur or other abnormality.

Urine, specific gravity 1020, distinctly acid, of a dirty brownish straw colour, with a slight deposit of pus, but no tube-casts; only a faint trace of albumen, no sugar, and no tubercular or other bacilli.

Taking the facts as stated by the patient and the physical signs presented to me, I came to the conclusion that the case was one of pyonephrosis with almost complete occlusion of the right ureter. From the suffering of the patient, the great constitutional disturbance, and the considerable amount of distension of the renal pelvis, I deemed immediate operation advisable.

He was placed under chloroform on 14th October, for the purpose of having nephrotomy performed. While going under chloroform I noticed the swelling in the right side distinctly, and those who were assisting me also observed it, but when the patient was deeply under the influence of the anæsthetic I palpated the right kidney previous to making an incision, when I discovered that the accumulation had suddenly disappeared, but no change could be observed in the abdomen beyond the absence of the tumour previously seen. I at once concluded that, as an effect of the anæsthetic, the ureter had suddenly become relaxed, and the fluid escaped into the bladder, but on passing a catheter only half an ounce of pure urine escaped. The next question considered was, had the fluid escaped into the abdomen, had it evacuated itself into the ascending colon, or had it ruptured into the the perinephritic space? But as this point could not be cleared up at the time, the operation was abandoned, and the patient was placed back in bed. I saw him in the afternoon of the same day, and from his appearance greatly feared that the contents of the pyonephrosis had escaped into the abdominal cavity. The patient lay upon his back, he had a pinched anxious expression, the skin was covered with copious cold perspiration, the knees were drawn up, the abdominal walls were retracted, he complained of great weakness and considerable pain in the abdomen, his pulse was weak and compressible, and his temperature had fallen below 96° F. The bowels had not yet been moved, and there was no evidence of any fluid accumulation in the colon or in the perinephritic space; consequently I was in great doubt whether to open the abdomen, or to delay doing so. I determined to postpone, and to see the patient again in the evening. At 10 o'clock P.M. the patient

had much improved in appearance, the pulse was stronger, the temperature had risen to almost normal, and the pain, which in the afternoon had extended over the whole abdomen, was now limited to the original site of the tumour. Still evidence was wanting as to where the fluid had gone.

On the morning of 15th October the patient was distinctly improved, but still nothing had been evacuated from the bowel, and the urine remained free from pus. For the first time, however, the newly passed urine was found to contain a large number of micrococci.

On 17th October, for the first time since the patient was under chloroform, a slight swelling was observed over the area occupied by the pyonephrosis; but it was not until the 22nd October that any very marked accumulation could be made out. From the 17th to the 22nd the patient complained of very little pain, and the bowels had only moved on one occasion, and that after a large soap and water enema.

On the 22nd October the following note was made:—

"On palpation there is a distinct tumour in the right lumbar region; it can be fairly well defined at its lower border and anteriorly. Fluctuation is easily made out, and there is considerable change in the percussion since the 10th October. The dulness is still continuous with the liver, and above the level of the umbilicus the limit of dulness is practically along the middle line. From the umbilicus downwards it takes a course downwards and outwards, which is also practically a straight line to the middle of Poupart's ligament.

"For the last three days the bowels have been loose; moved four times. Urine, specific gravity 1020, pale, acid, a slight mucous deposit, but perfectly free from uric acid, urates, and pus."

Between 22nd and 29th October the dulness and swelling varied considerably in amount, but at all times a well-marked tumour was present. On the 29th October the tumour appeared to be more distended than when the patient was admitted, although the pain was not nearly so severe, and for the first time since the patient was under chloroform pus made its appearance in the urine, and now in a much larger quantity than previously. Between the 29th of October and 14th November the urine continually contained large quantities of pus, and the size of the pyonephrosis was inversely to the amount of pus contained in the urine, herein showing that the pyonephrosis was now emptying itself into the bladder.

Nephrotomy was performed on the 14th November, and fully 26 oz. of very fœtid pus were evacuated from the pelvis of the kidney. After the operation the patient's general health rapidly improved, and, although abundant at first, the purulent discharge rapidly diminished in amount; and the patient had so far recovered by the 30th November that he was allowed out of bed, and was discharged from the hospital on the 6th December.

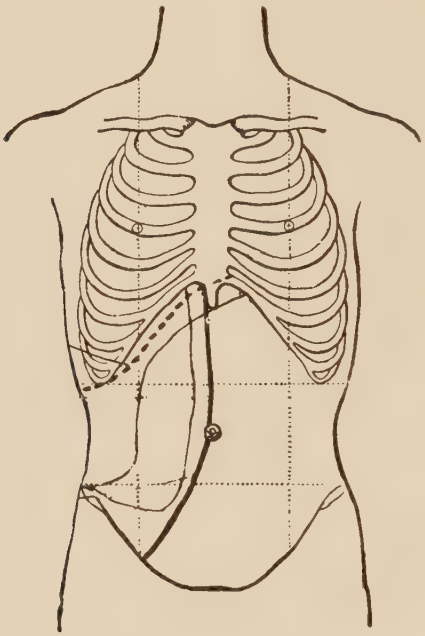


FIG. 3.

The dotted line indicates the lower margin of liver before operation.
The light lines indicate the limit of renal dulness on day of operation (14th November).
The heavy line shows the limit of renal dulness on 22nd October.

On the 2nd January, 1896, he was readmitted on account of a small fistulous opening which continues to discharge a little pus. The patient has gained considerably in weight, and his general health is much improved.

In this case, when the patient was first seen, he presented a characteristic renal swelling on the right side, elastic and fluctuant, and although not associated at the time of admission with the usual urinary deposits seen in cases of pyonephrosis,

the history of the case, especially the symptoms indicative of systemic poisoning, pointed to an accumulation of pus rather than of urine in the renal pelvis. The question as to how the pyonephrosis escaped in the first instance is difficult to answer; but, from what has been shown of the facts of the case, the strong presumption is that the evacuation took place into the bowel. In pyonephrosis, beyond forming an abscess in the loin, there are four modes of escape for the accumulated pus:—(1) Into the bladder, by the ureter becoming patent, or by ulceration of the wall of that viscus leading to a direct communication between the renal pelvis and the bladder; (2) rupture into the cavity of the peritoneum; (3) escape into the peri-renal connective tissue; (4) evacuation of the pyonephrosis into the alimentary canal.

It is clearly enough shown that the escape did not take place into the bladder or the peritoneal cavity, so the only conclusion to be drawn is that the pus must have found its way either into the peri-renal tissue or into the bowel. That the former course was not followed is also sufficiently evident. When pus escapes into or is originally formed in the peri-renal connective tissue, the patient complains of a deep-seated, severe, and lacerating pain in the lumbar region, which is increased by pressure in the loin. This is accompanied by the formation of a doughy swelling, which fills up the lumbar region, and causes a sense of fulness, most marked posteriorly. At the same time the skin in the loin becomes red, waxy, and œdematous; there are marked evidences of septic absorption, constitutional disturbance, elevation of temperature, with evening exacerbations, rigors, sweating, and gastric disturbance. These symptoms were wanting in the case just recorded, so that we must conclude that the sac of the pyonephrosis must have become adherent to a portion of bowel, into which temporary drainage was established. The fœtid condition of the pus in the pyonephrosis favours this idea, while the failure to observe pus in the stools is rather against it.

VI.—RARE VARIETY OF CYST OF THE URINARY BLADDER, PROBABLY ARISING FROM THE URACHUS, CURED BY OPERATION.

By Dr. Newman.

A. M'V., a miner, æt. 39, was admitted into Glasgow Royal Infirmary on 21st October, 1895. He complained of severe pain in the hypogastric region, which commenced four days

previous to admission, and has continued ever since. Coincident with the onset of the pain, he found that he was unable to micturate, and his doctor required to pass the catheter. When the urine was drawn off, it was found to contain a large quantity of blood.

On admission he was suffering considerable pain, had an anxious expression, and walked with difficulty. Sickness and vomiting came on soon after the onset of the pain, and were followed by attacks of diarrhœa. The skin over the region of the bladder was red and blistered, due to hot fomentations and mustard having been applied previous to admission. The abdomen was considerably swollen and very tense over the region of the bladder, and from the umbilicus to the pubes it was absolutely dull on percussion. After admission a catheter was passed, and 20 oz. of urine, containing a large quantity of blood, were drawn off. This gave the patient considerable relief, but, even although the bladder was completely emptied, the dulness in the hypogastric region did not disappear. From 1st until the 8th November the patient's condition steadily improved, and at the latter date he was able to pass urine without difficulty. Physical examination of the abdomen still showed considerable swelling in the hypogastric region, resembling in appearance a greatly distended bladder. Over the area of the swelling there was considerable tenderness on pressure, and on palpation fluctuation could be made out. The patient was placed under chloroform, and a free incision was made in the middle line in front, midway between the pubes and the umbilicus. On penetrating the transversalis fascia, a large quantity of gelatinous fluid escaped, which had a strongly ammoniacal odour. The cyst wall was thin and smooth, and its anterior wall was not covered by peritoneum. The cyst extended from the apex of the bladder to the umbilicus. After clearing out the contents, the cyst was washed with carbolic solution, and a drainage-tube inserted. In the evening the dressing was found to be soiled with urine, which had a strong ammoniacal odour.

On 16th November the greater quantity of the urine passed through the wound in the parietes, so that a gum-elastic catheter was tied in the urethra for drainage; but, notwithstanding, urine continually escaped through the wound, and it was not until the 16th December that the cyst became completely obliterated, and the wound in the parietes closed.

On making careful inquiry into the history of the case, it was found that the patient has noticed a swelling in the

hypogastric region as long as he can remember, but till this occasion it gave him no trouble.

Cysts of the urachus are very rare, the only recorded cases which I can find being those published in the *Lancet* of 6th October, 1888, and in the *Annals of Surgery*, St. Louis, 1891.

When we remember the mode of development of the urachus and its close relationship to that of the urinary bladder, we are almost surprised that malformations of the urachus are not more frequent. The urachus is a structure which, probably on account of its almost unfailing good behaviour, is rarely taken any notice of in works on surgery, although we know that in infants at birth it is sometimes found to be patent, so as to permit the escape of urine from the umbilicus. Dr. Paget, of Leicester, reports in the *Medico-Chirurgical Transactions*, vol. xxxiii, p. 293, a case of patent urachus in a man aged 40, where the canal was occupied by a calculus, and several somewhat similar malformations have since been published. Mr. Athal Johnstone, Mr. Cooper Foster, and Mr. Bryant have described growths arising from the centre of the umbilicus, but in most growths such as they describe the tumour is composed of a more or less solid tissue, and while a more or less minute canal may extend from the tumour, it is only for a short distance, and does not connect with the bladder. So, while it cannot be denied that these growths may have some relationship to the urachus, or to that part of the stalk of the allantois (uro-genital cloaca) which develops into the urachus and bladder, they are of an entirely different nature from the case now shown to the Society.

VII.—PATIENT WHO HAD A STRANGULATED INGUINAL HERNIA, WHICH RUPTURED EXTERNALLY, WITH THE FORMATION OF ABSCESS, FOLLOWED BY SPONTANEOUS CURE.

By Dr. Newman.

S. R., æt. 38, was admitted into the Glasgow Royal Infirmary on 13th March, 1895, complaining of a painful swelling on the right side of the abdomen, and corresponding in position to the internal abdominal ring. He said that the onset of the pain occurred just a week previous to his coming to the hospital, and commenced in a spot which he could place his finger on. It gradually spread from there to its present position, which, on inquiry, was found to occupy an area 3 inches in length and 2 inches in breadth, and parallel to

Poupart's ligament. In this area there was a distinct swelling, the edges of which were well defined, and on palpation a slight sense of fluctuation could be made out.

On the day of admission I was asked to see the case, and from the situation of the swelling, and from its appearance, I came to the conclusion that it was an abscess, possibly connected with a direct strangulated inguinal hernia. An incision was made at once, when a quantity of pus escaped, and on exploring the abscess a small communication was found between the abscess cavity and bowel just at the opening of the internal abdominal ring. The abscess was laid freely open, but, notwithstanding, a considerable amount of cellulitis ensued, demanding, therefore, incision both upwards and inwards from the original wound; and feculent matter continued to escape from the opening for three months, during which time the wound gradually closed, and when the patient was dismissed on the 19th of August he was nearly well, and since then he has enjoyed almost perfect health. The situation of the original swelling, and the communication with the bowel, suggested the idea of a very small strangulated hernia as the cause of the abscess, rather than appendicitis.

Meeting X.—7th February, 1896.

Dr. J. W. Allan *in the Chair.*

I.—A case illustrative of the early occurrence of eye symptoms in locomotor ataxia.

By Dr. James Hinshelwood.

The following case is one of considerable clinical interest from the typical and varied character of the eye symptoms which are present, and particularly from the very early occurrence of the optic atrophy:—

The patient, a male, æt. 46, came under notice a few weeks ago, complaining of a gradual loss of vision in both eyes. The vision of the right eye began to be defective about eight years ago, and has gradually become worse, until he can now only recognise large objects, such as the hand. The vision of the left eye began to fail three years ago, and has gradually become worse, although he can still read the larger test-types.

On ophthalmoscopic examination, optic atrophy was found to be present in both eyes, but most advanced in the right. The discs were very pale and distinctly cupped, the edges clear cut, and the arteries diminished in calibre, particularly in the right.

On examination I was struck with the marked contraction (myosis) of both pupils, because in optic atrophy there is usually dilatation of the pupils. Suspicion was, therefore, at once aroused as to the probability of the atrophy being the accompaniment of a spinal lesion, the myosis being probably due to involvement of the cilio-spinal centre of the cord. This suspicion, further confirmed by the inequality of the pupils, was rendered a certainty by the examination of the pupillary movements, when the Argyll-Robertson phenomena were found to be present—viz., complete loss of the light reflex, with the preservation of the associated movement of contraction on accommodation. Owing to the marked myosis, the range of movement of the pupil on accommodation was only slight, but was perfectly distinct on careful examination.

The fields of vision, as seen in the perimetric charts, present the alteration which is usually met with in the atrophy of locomotor ataxia. It is usually characterised by a progressive peripheral defect in the field of vision. The contraction of the field gradually progresses until only a small portion is left to the outer side of the blind spot, and enclosing the point of fixation. This is well seen here in the right eye, where the atrophy is most advanced, but the field in the left eye is also considerably constricted. Sometimes the central visual acuity is good, even with great peripheral constriction of the visual field, and such patients may not be aware of any visual defect until they are examined with the perimeter. Here, however, there is in both eyes very decided diminution of the central visual acuity, and hence the patient sought advice.

The knee-jerks were then examined and found to be completely lost. The cutaneous reflexes, except the plantar, were abnormally active, but this has been frequently remarked in the early stages of locomotor ataxia. No ataxia was found on careful examination.

The patient made no complaint as to his general health, but on questioning him he said that he had been greatly troubled for the last six years with shooting pains in his limbs, and particularly in his legs. These had been regarded and treated as rheumatic pains. He complained also of occasional slight attacks of numbness in the right leg. His bowels are more costive than they used to be, and he cannot retain his

motions for any length of time when the desire to defæcate arises. He has also recently experienced some weakness of the bladder, requiring frequently to wait for some time before the urinary flow is started.

From the character of the eye symptoms alone the diagnosis of locomotor ataxia might be made with confidence. There is no other disease of the nervous system in which such a group of eye symptoms is manifested, and to emphasise this fact I will briefly summarise them:—(1) Optic atrophy; (2) peripheral constriction of the visual fields; (3) pupillary myosis; (4) inequality of pupils; and (5) the Argyll-Robertson pupillary phenomena. The other objective and subjective symptoms, however, strongly confirm the diagnosis of locomotor ataxia in the pre-ataxic stage.

This case affords an excellent clinical illustration of the fact that the eye symptoms in locomotor ataxia are often of prime importance in deciding the diagnosis in doubtful cases, and that not infrequently they constitute the first symptoms of the disease. Further, the observation and correct interpretation of these may lead directly to the diagnosis of this grave nervous disease long before the obtrusive symptoms of the spinal lesion have manifested themselves, and when its presence is therefore entirely unsuspected.

This case illustrates another important clinical fact, which, though agreed upon by all competent observers, is not widely known—viz., that when optic atrophy appears as an early symptom the spinal symptoms are exceedingly slow in development, and even when they do appear they seldom manifest the intensity met with in other cases. The atrophy in this case appeared eight years ago, and as yet no ataxia has manifested itself. Charcot observed a case with an interval of ten years between the atrophy and the appearance of ataxia, Buzzard relates a case with an interval of fifteen years, Gowers gives a case with an interval of sixteen years, and Benedict of Vienna records several similar cases.

The recognition of the early occurrence of optic atrophy in locomotor ataxia is thus of importance in the prognosis, rendering it more favourable as regards the slow development of the spinal lesion. Unfortunately the prognosis of the optic atrophy is not so favourable. It is usually slowly progressive, and in most cases it ends in complete blindness. Sometimes, however, it becomes stationary, and in exceptional cases there may even be slight improvement.

II.—CASES OF BERI-BERI TREATED IN THE GLASGOW WESTERN INFIRMARY.

By Dr. James Finlayson.

Some cases of beri-beri, six in number, admitted to my ward in the Western Infirmary, during the last few years, seem worthy of notice on account of the rarity of this disease in Glasgow, and also because of the great interest attaching in recent times to all forms of peripheral neuritis. Of course, but little could be expected in watching a few stray cases, away from the centres of this disease, by those with practically no experience of a disorder common enough elsewhere; but these very circumstances give a certain value to a few isolated observations. Dr. George Marshall, who sees cases of illness at this port, sent the first cases to my wards, and directed the other foreign seamen also to me, as I had seen the first. He assisted in various ways in the investigation of the cases. Considerable difficulties occurred in studying the cases owing to their language being unknown, and interpreters were not always at hand when required; but in one case the nurse in charge could make out partially the Chinese spoken by the patient, although the dialect was different from the one she knew.

Of the six cases, one was a Scottish seaman who had become ill, some months before admission, while out with the vessel at Java—one of the regions affected with beri-beri.

Two of the six patients were natives of India, and both came to Glasgow at the same time and on the same steamer, one of them having been for a time at Singapore before he joined the ship on this voyage. This also is a favourite place for beri-beri. The other Hindoo had been for eighteen months in the same steamer (trading to Japan, but calling at Singapore). The former became ill while at Havre on the way home; the latter not till Glasgow was reached. On this steamer, only one previous case, and that a slight or doubtful one, had occurred during the preceding five years. Both patients were firemen, and they slept in adjoining berths. They had been on full duty till the time stated. This seems to indicate the long period which may elapse from the time of leaving an infected district before symptoms supervene in such a form at least as to incapacitate a man for work.

The other three patients were Chinese firemen. The first Chinaman seen became affected on the voyage from Singapore to New York, and became so weak and helpless that he had

to be carried up regularly on to the deck. He had been ill five weeks before admission. The second Chinaman was also a fireman, and he had only been ill a few days before the arrival of his steamer from the East, but this was a month before his admission to the Infirmary here. The third Chinaman, also a fireman, became ill six weeks before arriving in Glasgow on his voyage from Hong Kong *viâ* New York.

In some of the cases the food supplied was inspected by us, but nothing was made of this. The rice and peas seemed excellent. The sun-dried fish used by the Hindoos, and the sample of cabbage used by one of the Chinamen (Ah Ching), seemed very unattractive, especially the latter, which appeared pretty much decomposed; but apparently the food had nothing to do with the occurrence of this disease, as many others were using the same articles of diet without any harm. In the case of this Chinaman (Ah Ching), however, but apparently only in his case out of the six, the disease had proved fatal on the same voyage to one of the shipmates, a fellow countryman, who died at sea.

This fact, by its exceptional character, throws some light on the disease as we found it in Glasgow. Any severe forms of the disease, with rapidly advancing symptoms, were likely to terminate fatally before the end of long voyages from the East, which were prolonged sometimes by coming round by way of New York or France. The disease in the whole of our six cases was essentially of the paralytic type, although some of the patients presented more or less œdema of the feet and gastric pains at or immediately before admission.

The Scottish patient and the second Chinaman were not so badly affected as to prevent their walking on admission; but even the former, on going about for half an hour, felt so feeble on his legs that he fell at times. The others were very helpless on their legs, some quite unable to stand even when supported, partly owing to pain, partly to loss of power.

At times, pains in the limbs were severe. In all the cases there were pains produced on pressing the muscles of the calf, and tenderness on pressure over the nerve trunks was sometimes very pronounced.

A marked and usual feature in the cases was anæsthesia or analgesia, sometimes over limited areas in the legs, at other times very extensive and extreme. In one of the Chinamen (Ah Ching) the resemblance of the hands and feet to the drooping seen in cases of lead paralysis was so striking as inevitably to give rise to comment.

In all the cases the knee-jerk was absent, but in one of the

Hindoos (Amenoola) a faint jerk could be obtained on the right side shortly before his dismissal. On his reporting himself at the Infirmary 2¼ years later, the jerk was still absent on the left side, but present on the other, as before.

In the last case (Ah Pow), although the patient had recovered so as to be able to walk up and down stairs alone, and although the improvement was further indicated by the electrical "reaction of degeneration" giving place to the normal serial reactions, the knee-jerk on both sides remained quite absent when he left. The nervous symptoms thus coincided with those found in peripheral neuritis. The electrical reactions varied with the severity of the cases. In some, apparently those already recovering or who did actually recover soon, faradic contractility was preserved. In the case of the Hindoos, whose legs had been hardened by constant exposure to the furnaces, an apparent absence of response was ascertained to be due to the resistance of the skin. When this was overcome by soaking it with salt water, the faradic response was obtained in them. In other cases, no response to this current could be obtained. The response to the galvanic current, both as regards its slow character and the serial reactions, indicated the "reaction of degeneration." In the case of (Ah Pow) this passed off with his improvement, the serial reaction becoming normal. His case is given in detail at the end of this paper as a specimen of the disease, and as presenting this interesting feature.

As regards *general* symptoms, it may be said there was practically an absence of fever. One of the Hindoos showed on the day of admission a temperature of 100° F., and one of the Chinamen (Ah Ching) showed on three occasions a temperature of 100° to 101·2° F.

In view of the anæmic theory of the disease the blood was tested in four of the cases as to its richness in corpuscles and in hæmoglobin; but although some deficiency was detected, especially in the latter, there was no great falling off in either respect.

Two of the patients had systolic cardiac murmurs, apparently of anæmic origin, disappearing before dismissal.

Œdema of the feet and legs had been present in nearly all the cases at one time; in some, shortly before admission; in three of them it was still present on admission to the wards. A suspicion of peritoneal effusion was entertained in one case, but it was not certain. A sense of oppression or pain in the region of the stomach, with, in some cases, a feeling of tightness round the waist, was noted in four of the cases.

No *filariæ* were detected in those cases examined, when tried late at night.

The treatment pursued was by nutritious feeding. Some difficulty was experienced in the case of the Hindoos, who were Mahommedans, owing to religious scruples. During the stage of pain, rest in bed was prescribed; and in the way of medicine iodide of potassium, arsenic, and other tonics were given. Electricity was also employed, the form varying with the responses obtained in the special cases. Exercises, graduated according to the power of the patients, were prescribed when the pains subsided; and, in the case last treated, massage was carried out by one of the nurses who had learned to practise it. As stated in the detailed report, this seemed to be followed by a marked improvement; the patient, no doubt, had been improving before, but it seemed to strengthen the muscles and enable exercises to be carried out better.

In the matter of recovery the element of time is, no doubt, of great importance, and also the removal of the patients from infected districts; both of these conditions were fulfilled in the cases admitted to the hospital here.

Case of Ah Pow.—Ah Pow, æt. 40, Chinaman, fireman on board a steamer, was admitted on 6th September, 1895, with loss of power in his legs of two months' duration.

His illness began on the voyage from Hong Kong to New York, the first symptoms being pain in the stomach, with vomiting and a general feeling of malaise. These symptoms lasted two or three weeks, and were immediately followed by great swelling of the feet and legs, with inability to walk, the swelling also lasting three weeks.

On admission his face wore a somewhat pinched expression. He was unable even to stand alone. His limbs were very thin; his muscles felt soft and flabby, and in the legs seemed distinctly wasted. There was no evidence of œdema. Examination of the lungs, heart, liver, and urine presented nothing remarkable. Only a few sonorous râles were heard in the lungs.

Nervous System.—There seemed to be no disturbance of tactile sensation. There was considerable tenderness of the calves of the legs, and the following nerves were painful on pressure—the external popliteal, the musculo-cutaneous, and the plantar on both sides. There was no tenderness in the thighs or in the arms.

The knee-jerks were completely absent. The plantar, cremasteric, umbilical, and epigastric reflexes were all present, the cremasteric being well marked.

The grasp of the hands was fairly good, and there was no complaint of loss of power in them. The tongue was slightly tremulous on protrusion. There was slight nystagmus (probably unconnected with the present disease). The pupils responded well to the stimulus of light and with accommodation.

On examination by the faradic current, on 16th September, no response was got in either the nerves or the muscles below the knees; but there was a response to this current in the extensor and adductor regions of the thighs. For this response, however, the strongest obtainable current from the primary coil was needed. On examination by the galvanic current, on 6th October, a distinct "reaction of degeneration" was got in the muscles of the legs and thighs. The A.C.C. was got with a weaker current than that needed for the C.C.C. The current was too painful to allow of the C.O.C. being obtained.

For about two weeks in the middle of October the patient seemed to suffer very severe pain in the calves of the legs, especially at night. He would then toss about in bed very much, or sit up rubbing his legs and making grimaces. If, in the midst of this, the nurse came up to his bed and began to rub his legs with a soothing liniment which had been prescribed for the purpose, he would very soon fall asleep, just like a child. He also for a short time complained of colicky pains.

By 14th November he had improved considerably. He was complaining of no pain, and there was only slight tenderness of the calves and of the plantar nerves. He could walk on the level fairly well, though his gait was somewhat ataxic, and he could climb a stair with one hand on the rail, though he had extreme difficulty in raising himself on tiptoe. This improvement was further manifested in that there was now obtained a response to faradic stimulation of both the nerves and the muscles of the legs. The contractions to galvanic stimulation were also found to be normal as regards their series and their character, with the exception of those obtained from the anterior crural nerve.

When his blood was examined on 20th November there was evidently no deficiency of corpuscles, though the hæmoglobin was only 70 per cent. Though examined at midnight, the filaria sanguinis was not found.

He was dismissed on 9th December to go home to China, free from pain, still unable to stand on tiptoe, but able to go up and down stairs without holding on to the rail. His knee-jerks were absent to the last.

Treatment was at first exclusively by rest, with certain medicines, chiefly iodide of potassium and arsenic. He had

the continuous current pretty regularly applied from 20th September till the end of October. Massage was then begun by the nurse, and continued daily. The most marked improvement occurred during the period when he was undergoing massage; and, as already indicated, exercises, first in standing and walking, and then in climbing stairs, were carried out in a graduated manner.

NOTE OF CASES.

1. William Blake, Scottish seaman, æt. 40, admitted 14th June, 1889; dismissed much improved 6th July, 1889.

2. Farcanoola, Hindoo, fireman, æt. 25, admitted 25th July, 1889; dismissed well 21st October, 1889. (Reported by shipmate two years later to be keeping well.)

3. Amenoola, Hindoo, fireman, æt. 35, admitted 25th July, 1889; dismissed well 14th August, 1889. (Reported himself at Infirmary 19th October, 1891, and found well.)

4. Ah Ching, Chinaman, fireman, æt. 25, admitted 3rd November, 1891; dismissed well 23rd March, 1892.

5. Mong Vong, Chinaman, fireman, æt. 30, admitted 27th April, 1894; dismissed 5th May, as there was a chance of getting home, and as he was not very ill.

6. Ah Pow, Chinaman, fireman, æt. 40, admitted 6th September, 1895; dismissed well 9th December, 1895. (Case reported in full.)

Dr. Wallace Anderson said he believed he had had three cases of beri-beri in the Royal Infirmary last spring. The patients were all Norwegian sailors of early middle age. The first, who was admitted in April, had become affected, shortly after leaving Chili, with swelling of the feet and ankles, which gradually extended upwards over the whole body, neck and head alone excepted. Such was his condition on admission, along with an amount of weakness which only permitted him walking with difficulty. On further examination, a considerable amount of fluid could be made out in the peritoneal and pleural cavities. He also complained of attacks of shortness of breath, arising from a feeling of tightness across the chest. These attacks always passed off when he sat up for a little. There was not the slightest trace of subcutaneous hæmorrhage anywhere or any history of such a thing, or any affection of the gums.

The other two cases were admitted together in May, with some œdema, though not so extensive as in the former case. It had begun when the ship was only a few days out from Belize, British Honduras. In answer to a direct question as to bleeding from the gums, one of the two said that this had

occurred once or twice very slightly, along with a few very small red spots on the front of one leg. Nothing of the kind was found on admission, but there was a considerable area of impaired sensation in the leg referred to—as patient said, a feeling as if the part were dead. The reflexes were normal in all the cases, and in one only was there slight albuminuria.

With regard to the first case, Dr. Anderson was at the time unable to come to a diagnosis, and could only suppose it was something allied to scurvy. It was only on the admission of the other two patients, and the captain of the ship saying it was beri-beri, that a closer scrutiny of the cases followed, and the same conclusion was arrived at. All the three patients recovered with rest, warmth, and ordinary tonics.

III.—THE TREATMENT OF PHTHISIS.

By Dr. Eben. Duncan.

The line of treatment followed was to thoroughly purify the atmospheric air supplied to the wards, and to administer cod liver oil internally, and inhalations of beechwood creasote and eucalyptus. The patients gained in weight, and the bacilli disappeared from the sputum. As the paper was read at a late hour, the discussion, on the motion of the Chairman, was adjourned till next session.

Meeting XI.—21st February, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—A LANTERN DEMONSTRATION OF THE PRESENCE OF PUS-LIKE CELLS ON INFLAMED ENDOTHELIAL SURFACES, WITH SPECIAL REFERENCE TO THE CORNEA.

By Dr. Thomas Reid.

The above demonstration consisted in the exhibition of a large number of lantern-slides showing the condition of the cornea and subjacent structures in inflammation associated with superficial ulceration of the cornea. As each slide was exposed a full explanation of the essential points was given. The appearances presented, it was urged, justified the view that the pus-like cells seen to be present on the deep surface of the cornea and neighbouring parts originated from the endothelium and not from the cells in the substance of the

cornea. Slides representing other endothelial surfaces giving rise under irritation to the production of pus-like cells were also exhibited. The demonstration was highly appreciated, and the President, on behalf of the members present, cordially thanked Dr. Reid for giving it to the Society.

Meeting XII.—6th March, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—CYSTIC KIDNEY SIMULATING OVARIAN TUMOUR.

By Dr. T. K. Dalziel.

Dr. Dalziel showed a fresh specimen of cystic kidney, removed from a young lady aged 20 years. There had been practically no symptoms except those associated with gradually increasing bulk. Examination of the abdomen revealed a well-marked multilocular cystic tumour, occupying the lower two-thirds of the abdominal cavity. Both flanks were clear on percussion, and pubic dulness was continuous with that of the tumour.

Through a median incision the tumour was exposed, lying behind the mesentery of the small intestine, which was adherent to the tumour. The mesentery having been incised and the three larger cysts aspirated, the tumour was freed from its adhesions. The pedicle was found to proceed directly back to the aorta, corresponding to the right renal artery displaced into the middle line. The nature of the tumour was then determined by the absence of the right kidney from its normal situation, and later on by the existence of a small portion of kidney substance and the ureter. It seemed probable that the cystic disease had affected a kidney congenitally displaced to the middle line.

The tumour consists of a small portion of kidney and six large smooth-lined cysts with thick fibrous walls.

The patient bore the operation well.

II.—CASE OF LITHOTOMY OPERATED ON BY THE LATE DR. WILLIAM LYON IN THE ROYAL INFIRMARY ABOUT FORTY YEARS AGO.

By Dr. D. N. Knox.

J. S., aged 65, states that in the year 1856 or 1857 he was a patient in the Royal Infirmary, Ward 8, then under the care

of the late Dr. William Lyon. He suffered from stone in the bladder, and had been ill for eighteen months previous to his admission. Dr. Lyon, he says, removed a stone about the size of a hen's egg, rough, rounded, with a flattening on one side. After the operation he was bandaged. No tube was introduced into the wound. There was no severe hæmorrhage, and he made an excellent recovery, leaving the Infirmary about five weeks from the date of operation. Small cicatrix in left side of perineum still quite visible.

Since that operation he has enjoyed good health until recently, when he began to complain of pain at the neck of the bladder, frequency of micturition, and other symptoms suggestive of stone in the bladder. He was sent into the Infirmary on 7th February last, and on examining his bladder with the sound I felt what appeared to be a very small calculus embedded at the neck of the bladder. The calculus could not be moved, but when struck gave back a faint tinkle, which still could be heard 2 feet away.

Under the use of lithii carb. and other resolvents he has passed many small fragments, and is still passing them, and is now much better than on admission.

Journal of Ward 8 for 1856-57 cannot be found.

III.—NOTES OF A CASE OF CYSTINE CALCULUS REMOVED BY LITHOTOMY.

By Dr. D. N. Knox.

H. B., aged 45, steelworker, was admitted, on 23rd December, 1895, into the Royal Infirmary under my care. He had always enjoyed good health up to four years ago, when he was suddenly seized with severe pain in the bladder and an urgent desire to pass urine. This he was unable to do, and a surgeon was called in, who relieved him by the catheter. A day or two afterwards he passed two small calculi. His symptoms then disappeared, and he had no more trouble till about six months ago, when he again began to suffer from difficulty and frequency of micturition, and other symptoms indicative of the presence of a stone in his bladder. By the sound this was felt to be of considerable size, and when struck returned a loud ringing note. The first indication of its nature was obtained from an examination of the urine. This on admission had a specific gravity of 1024, acid reaction, no albumen, no pus, no blood; it contained a white deposit $\frac{1}{4}$ in. thick at bottom of urine glass, which on microscopic examination proved to consist of cystine crystals. A few days later it is noted in the Journal

that oxalates in small quantities were found along with the cystine. The patient had also preserved the small calculi he passed four years ago, and these were handed to Dr. Marshall, Professor of Chemistry, St. Mungo's College, for examination. He reported that they consisted of pure cystine.

I submit here Professor Marshall's note on the nature of the cystine.

The specimen he refers to is contained in the tube now shown. The specimen on the table under the microscope was prepared by my house-surgeon from the urinary sediment.

On 3rd January, 1896, I performed lateral lithotomy with the rectangular staff, and removed an oval calculus weighing 3 oz., about the size of a pigeon's egg. It has a rough, lustrous surface, as if studded with minute crystals, yellow colour, rather soft consistence at first, and easily marked by the forceps in removing from the bladder. (Calculus shown.)

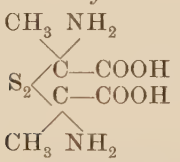
The history of the patient after the operation was uneventful, and he was dismissed well on 27th January.

This is the first cystine calculus that has occurred in my practice, and, although well known, it is one of the rare forms of calculi. Its rarity, the great beauty of the specimen, and the fact that that beauty is fleeting and is even now beginning to disappear, make it worthy of record.

Examination of urine made before his dismissal showed that no cystine or other crystalline deposit was present.

Cystin: $C_6H_{12}N_2O_4S_2$.

Constitutional formula.



A derivative of *alanine.*

Insoluble in alcohol and water. Soluble in alkalies and acids.

Cystin is a colourless solid, crystallising in six-sided plates or rhombic crystals.

IV.—NOTES OF A CASE OF TRAUMATIC APHASIA.

By Dr. Hector C. Cameron.

Dr. Cameron read notes from the Hospital Journal[1] of the following case of traumatic aphasia:—

Robert Paton, æt. 22, plumber, 30 Blackburn Street, was

[1] The case was reported by Dr. Joshua Ferguson.

admitted to Ward XVI, Western Infirmary, on 22nd January, 1896, suffering from the effects of a fall, from the top of a ladder 15 feet high, backwards upon a concrete floor.

On admission patient was wholly insensible; respirations were slow and shallow; pulse quick and feeble; surface of body was cold and clammy; temperature, 97·6° F. The pupils were equal, and reacted slightly to light; conjunctival reflex was present. On vigorous stimulation patient could be roused to a certain extent, short, however, of any evident intellectual apprehension of orders or questions. There was a severe and extensive contusion of the scalp in the right occipito-parietal region; no bony depression could be made out. There was no symptom or suggestion of basal fracture.

23rd January.—There is no change in patient's condition as regards sensibility. Temperature is rising, and is now 100°. Urine is being drawn off thrice daily by catheter.

24th January.—Patient has had an extremely restless night, continually tossing and endeavouring to get out of bed. He is still only partially responsive to physical stimuli, and wholly irresponsive to inquiries. Temperature, 101·6°.

25th January.—Temperature has fallen to 99·2°, but the muscular restlessness continues. There is no delirium in the sense of muttering or raving, not a word having been uttered since his admission. The movements are apparently purposeless and badly correlated.

27th January.—Restlessness still continues unabated. Temperature, 99°. Urine is being passed at intervals in bed. The pulse is now slow (45 per minute), having steadily decreased since day of admission. Perspirations and general flushings are now very marked. In spite of exhibition of the ordinary purgatives and of enemata, the bowels remain obstinately constipated.

28th January. — Markedly diminished restlessness, and patient's condition is more stuporose than before. The face is livid; breathing stertorous (8 to 10 per minute); pulse, 30 to 40 per minute.

29th January.—This morning, at 5·25 A.M., patient had a marked convulsion lasting three minutes. It was succeeded by fits at 5·45, 5·55, and 6·20. From 6·25 to 7·30 there was continuous twitching of the eyes and mouth. The fits, resembling the first ones, recurred at short intervals of from five to fifteen minutes until 12·15 P.M., when they altogether ceased. The convulsions varied much in character, degree, and duration. They began, as a rule, with a slight twitching of some group of muscles, almost every region of the body

seeming to present itself as the point of origin during the manifestations. The convulsions almost always finally became general, neither side of the body being markedly more affected than the other. At the close of the series patient's temperature was 100°; his face was livid, the conjunctivæ were injected, breathing was stertorous, and perspiration was profuse.

30th January.—There has been no recurrence of convulsions. Patient otherwise unchanged.

1st February.—Temperature, 97°. No change otherwise.

7th February.—Since last note patient has remained in a state of profound stupor, with subnormal temperature. To-day he has seemed to rally. He apparently recognised his wife, and has been moving his lips as though to speak all day.

8th February.—Patient now seems wakeful, and follows with evident interest the proceedings in the ward. On being spoken to he attempts to reply, his answers so far being only "yes" and "no." Neither now nor at any time has there been any indication of paralysis or paresis, local or general.

9th February.—Patient is now quite sensible and conscious, but the condition of aphasia is very marked. He fails to utter intelligibly almost the simplest sentence. Alexia and agraphia are equally manifest. Asked to write his name, address, and occupation he produced the following:—

Robert Paton Blockburn 30
Plumer
pblumd

10th February.—There is considerable improvement to-day on yesterday's condition, particularly with regard to speech. Reading and writing are still impaired to a disproportionate extent.

11th February.—Patient's whole mental condition is improved to-day. He speaks fairly correctly. He reads with evident understanding to himself, but with frequent phonetic errors. He wrote his name, &c., correctly as follows:—

Robert Paton
30 Blackburn Street
Plumber

He copied perfectly a verse from the New Testament, but when the following verse, which he read correctly, was distinctly and slowly dictated to him—

"And when he came upon the stairs, so it was that he was borne of the soldiers for violence of the people,"

he wrote thus:—

"And we have on the hairs so it bus that he was bore of the solders for live of the well."

He was then asked to write down the names of various objects presented to him, with the following result:—

Knife (correctly named), . . .	"knive."
Buttonhook (named by him "boathook"),	"toob hoots."
Scissors (named "shears"), . .	"wheers."
Spoon, ...	"spoon."
Watch chain (he knew he failed in this),	"gain ga hang."
Purse, ...	"burs."

17th February.—Tested to-day, patient shows a decided advance towards recovery of his intellectual powers. He now reads very correctly, making few slips, and generally correcting himself spontaneously. His replies to questions are perfectly coherent and intelligible. Both in speaking and in reading, however, there is a certain deliberation and hesitation, as if patient had to mentally scrutinise every word before giving it vocal expression. His power of writing also shows great improvement. To-day he wrote the alphabet, on request, with only two errors, both of which he corrected spontaneously. He wrote down and added correctly a set of figures, and when asked to write to dictation the same passage that was read to him on 11th inst. he produced the following:—

"And when he came upon the stairs so it was that he was born of the soldiers was cilance of the people."

On his stating that he felt very much better to-day, he was asked to write that down. Here he seemed to have some difficulty, and on writing what is appended, stated that he knew it was somehow wrong, but that his head was tired:—

"I am felling mery wouch better to-day."

(From the accounts of his friends and from other evidences, patient seems to be a specially well-educated skilled artizan, who was accustomed to speak at trade and church meetings.)

26th February.—Patient is still improving. He now reads and writes well; still rather slowly, but with increased freedom, and only occasionally stumbles over hard words. He volunteers an account of some subjective features of his illness, of which the following is a summary:—

The accident happened on the 25th ult. He has absolutely no recollection of the events of that day, although his wife tells him that he came home as usual to dinner, &c. He remembers perfectly the incidents of Tuesday evening, the 21st ult., being at a tea-party, and making a bookshelf for his wife afterwards. There is then a total blank until the 5th February—fifteen days after injury—when he first saw his wife, but could not speak to her or hear her speak, and was unaware of where he was, or, indeed, who he was. On the 6th he again knew his wife and saw a nurse, and saw and knew them both again on the 7th (this is the day on which he first seemed to be emerging from stupor, and to recognise his wife). On the following day he says there came a great change for the better. His head felt clearer, although slightly pained in the forehead. He knew that he was in a large room with other men in beds, and saw nurses and the doctor moving about. He knew when he was asked a question, and was able to apprehend it if it was a short and easy one, and always knew the correct reply, but could never utter it. He tried to read, but the printed words had no meaning, although here and there he recognised letters and words as familiar. Next day (the 9th) he found that when he tried to read he remembered most of the words before him, with some exceptions; though when he spoke them he did not know when and whether the spoken form corresponded to the printed one. Thereafter, he states, it has been this difficulty that has troubled him, and he has been afraid to trust himself to utter words the meaning of which he was perfectly aware of, and the correct expression of which he always recognised when uttered by others.

4th March.—Patient is now so well that it is very difficult to catch him tripping in any way that his powers are tested. There is still, however, a certain hesitation or guardedness in his responses.

10th March.—Patient dismissed to-day with a caution to regard himself as an invalid for some months to come.

V.—TUBERCULAR ULCER OF TONGUE.

By Dr. Hector C. Cameron.

Dr. Cameron showed a patient with a tubercular ulcer on the tongue, and said that a few months ago another patient was recommended to his care by a medical friend, suffering from a small ulcer on the under surface of the tongue, between the tip and the attachment of the frænum. The ulcer was com-

paratively superficial, grey on the surface, and with little or no surrounding or underlying induration. Both the appearance and the situation of the ulcer led to the conclusion that it was not likely to be an epithelioma. The lower front teeth of the patient were rather sharp and jagged, and he was recommended to have them filed by a dentist. He returned after several weeks. The condition of the teeth seemed now satisfactory, but the sore had increased rather than diminished. The sore and immediately surrounding portion of the tongue were then excised, and, on examination by Dr. Sutherland in the pathological department, were reported to be tuberculous in character.

The patient had a chronic cough and spit. Further examination showed that the apices of the lungs were the seat of disease, while the sputa contained abundant tubercle bacilli.

When the patient now shown came to hospital, his case was so like the other that Dr. Cameron was led at once to conclude that it was of the same nature. The ulcer was larger, but was situated in the same part of the tongue, and had the same appearance superficially. The ulcer, when the tongue was protruded, came into direct contact with a roughened and irregular tooth edge. The patient was the subject of chronic phthisis, and the sputa contained the bacillus of tubercle in abundance.

In both cases the patients, during coughing, had abraded the under surface of the tip of the tongue (just as may occur in whooping-cough) at the frænum, the irregularity of the teeth rendering this occurrence all the more probable. Subsequently auto-inoculation of the abraded surface with tubercle occurred through the medium of the sputa. In this way Dr. Cameron accounted for the tubercular ulcers in this situation in these two patients, and in some others to whose cases he referred.

VI.—SARCOMA OF THE KIDNEY AND SARCOMA OF THE OVARY IN CHILDREN.

By Dr. Hector C. Cameron.

Dr. Cameron also showed a large sarcoma of the left kidney removed by abdominal section from an infant 11 months old, and also a sarcoma of the ovary from a child aged 6 years.

VII.—NOTE ON A CASE OF PARALYSIS OF THE MUSCULO-SPIRAL NERVE RESULTING FROM A FRACTURE OF THE HUMERUS, WHICH WAS OPERATED UPON NINE YEARS AGO WITH COMPLETE SUCCESS.

By Dr. Barlow.

The patient, who is now 19 years old, had a simple fracture of the right arm nine years ago. Six weeks after the injury, the fragments were firmly united, and the splints were removed. A week later it was noticed that there was paralysis of the extensor muscles of the wrist and fingers, and loss of sensation over the back of thumb and index finger. The extensor and supinator muscles of hand and fore-arm gave no response to stimulation with galvanic or faradic current. For a week the continuous current was employed, with friction over the extensor surfaces, but no improvement took place in motor and sensory powers, and the paralysed muscles were rapidly wasting. Sixty-one days after the accident I made an incision down to the seat of fracture, and easily found the musculo-spiral nerve above and below the injured part; but for about half an inch the nerve disappeared from view, and was embedded in callus. By means of an osteotome a wedge-shaped piece of callus containing the nerve was raised, and then the adherent callus was sliced or broken away from the nerve.

From the third day after the operation the galvanic current was applied daily over the extensor muscles, but no response was obtained on breaking or completing the circuit for thirty-six days, and then only from the extensor indicis muscle. A fortnight later all the extensors and supinators responded to the currents, and there was return of voluntary power in the supinator longus and carpal extensors. Five months after the injury and ten weeks after the operation there was voluntary power in all the muscles, but the muscles were weaker than in the sound arm.

At the present time, beyond the presence of a cicatrix over the seat of operation, no difference can be made out in the two limbs either as regards sensation or motor power.

VIII.—CASE OF TUMOUR OF CEREBELLUM.

By Dr. Barlow.

J. T., female, aged 4 years and 8 months, was admitted into Ward 28, Glasgow Royal Infirmary, on 4th December, 1895,

complaining of vomiting, pain in occipital region, and inability to walk.

When 10 months old she had a severe attack of whooping-cough, and her mother thinks she has never been well since. At the age of 18 months had a mild attack of measles. Birth was natural, without forceps. Has never had any "fits." She began to walk when two years old. Her mother noticed about eight months ago that she had a squint. At this time she began to take "sick turns," during which she vomited—this has continued until the present time. She usually vomits for about one day in each fortnight, but during the week preceding her admission she was vomiting on three separate days. The vomiting is not related to her taking food, and is not accompanied by gastric pain. When vomiting, she always complains of pain in the occipital region, in its lower and right side. The pain is always referred to the same part. After she had whooping-cough both ears discharged; the left still discharges, but the right has stopped discharging for over a year. For the last six months she has been unable to walk, and whenever she attempts to stand she becomes so giddy that she usually falls down backwards. Her mother thinks that the child's legs have become much weaker during the last eight months, but that the giddiness is the chief cause of her failure to walk. Has control over functions of the bladder and bowel. Can answer simple questions, and is fairly intelligent for her age. She eats and sleeps poorly. When she has the "sick turns" she always lies on her face in bed and buries her forehead in the pillow. A brother and sister alive and well; none dead. Parents alive and well. There is no history of any injury.

The child's head is enlarged in all its diameters. Pupils are unequal, the left being the larger; they contract to light. She is not able to walk or stand erect, but can sit up in bed. Knee-jerks slightly increased in both legs. Protrudes her tongue in a straight line. No sensory defect can be made out.

Urine, specific gravity 1012; acid; trace of sugar; no albumen.

6th December.—Report by Dr. Napier.—"Right eye, pupil moderately active; left eye turned in, pupil large and somewhat inactive. On examination by the ophthalmoscope, both discs were found to be of a greyish-white colour, with an ill-defined margin and a filled-in appearance (choked disc). Vessels on disc and over retina are very tortuous and dark in colour. *Diagnosis.*—Atrophic stage of neuro-retinitis."

From the time of admission until the 13th December—*i. e.*, nine days—there was no vomiting, and no pain. If pressure were made over the right occipital region, the patient cried out after an interval of some seconds. On this day she was seen by two of my colleagues in consultation, but as an opinion was expressed that there was a want of correspondence between the description of the retinal lesion and the diagnosis of the retinal condition, it was agreed to dilate the pupil with atropine, and to have a second examination of the eyes upon the following day. The case was regarded as one of tumour of the cerebellum producing pressure on the grey matter on the upper part of medulla and pons, and it was thought that by trephining the right and lower fossa of the occipital bone and exposing the cerebellum it might be possible, if not to remove the tumour, at least to relieve pressure by puncturing the arachnoid between medulla and cerebellum.

On the 13th, and after the consultation, it was noticed that the girl was quite giddy after sitting up in bed for a short time. At 5·30 P.M. patient was observed by my house-surgeon, Dr. M'Call, to be lying with her face on the pillow, apparently asleep. On turning her over, the pillow was found stained with some brown fluid. The child was quite unconscious, pupils widely dilated, and insensitive to light (atropine had been used—a weak solution). There was no abnormal movement of eyeballs. Respiration very infrequent and stertorous, inspiration gasping, and expiration prolonged. After artificial respiration had been performed, the respirations became more frequent for a short time. Twice the respirations stopped for about twenty seconds, the pulse continuing good in quality, and about 90 per minute. Respiration stopped, and pulse gradually became weaker until 6·30 P.M., when the pulsations ceased. Consciousness was never present.

The following pathological report on the case was made by Dr. Charles Workman:—

"Permission was granted only to open the head.

"The body was small for the stated age. The head was very large, and specially broad across the parietal bones. The calvarium was found to be extremely thin and transparent. On removing it and reflecting the dura, the convolutions were found to be flattened and dry on the surface. The soft membranes appear healthy. The infundibulum is stretched downwards and forms a bladder-like distension of the third ventricle. The ventricles are all greatly dilated and filled with clear colourless fluid.

"On cutting into the cerebellum a large tumour is found, involving a great part of both lobes, and extending downwards and also forwards between the medulla and the cerebellum. The anterior portion of the tumour is soft and very vascular, the posterior is much firmer and white.

"Microscopic sections stained by Van Giesen's and Mallorg's methods show that the difference between the anterior and posterior parts is only relative: the tissues have the same character, but the anterior is looser and more vascular than the posterior. The tissue consists of a great hyperplasia of the neuroglia, with in places great aggregations of round-celled nuclei. The tissue is supplied with very numerous capillaries, around which there appear very distinct lymph spaces. The nuclei of the endothelium of these vessels show out very distinctly from the nuclei of the tumour tissue. In some parts the tissue has a wide meshwork of branched cells having a myxomatous character.

"The tumour may be classified as a glio-sarcoma undergoing in some parts a myxomatous degeneration."

Meeting XIII.—20th March, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—President's Address—"The History, Forms, and Theories of the Vaginal Speculum."

By Dr. W. L. Reid.

In casting about in my mind for a subject in which I might interest you for an hour to-night, it occurred to me that not a great deal is commonly known in regard to the history of the vaginal speculum, and that the theories of those specula in common use are not very clearly defined in the minds of many who have studied them from the practical side only. Further, as for many years past I have taken pleasure in looking into the subject, and as some of the older forms are in my own possession, I thought an examination of some of these would not be without a certain degree of historic and even scientific interest, and I determined to take this as a theme, and, partly by description, partly by demonstration, try to make it interesting, and, possibly, to some extent instructive.

There have been many who have extolled the speculum, and many who have condemned it as a comparatively useless apparatus. Thus Balbirnie (*The Speculum applied to the Diagnostic and Treatment of the Organic Diseases of the Womb,* by John Balbirnie, A.M., Lond., 1836), after speaking of the various forms of discharge from the interior of the uterus, adds, "But the accurate diagnostic and the rational treatment of this disease by means of the speculum is, we contend, one of the greatest services conferred on society by the progress of modern science" (p. 108). And again he says, "We go forth its advocate. We proclaim ourselves 'the apostle of the speculum.' With that instrument we link our fate; and by that we will stand or fall."

"The speculum is, we maintain, for the diseases of the womb precisely what the stethoscope is for the diseases of the chest. Without either there is no accurate diagnostic. Without these important aids to practical medicine there is no exact appreciation of the pathological condition of the organs in question. Without these indispensable lights we are often forced to grope entirely and literally in the dark" (p. 13).

Again, Dr. Mitchell, in his "Practical Remarks on the Use of the Speculum" ("On Ancient Use of the Speculum," by H. G. Wright, M.D., *British and Foreign Med.-Chir. Review,* 1865, vol. xxxvi, p. 179), says, "I have repeatedly been asked how it happened that our forefathers treated female diseases successfully as well as the present generation of medical men without the use of the speculum. To which I would reply that many went to the grave with the seat of the disease undiscovered."

On the other hand, I have met able men in our profession who hardly ever use a speculum, and who prefer to attack uterine and pelvic disease by means of constitutional and hygienic treatment only. My individual opinion, founded on a not inconsiderable experience, is that wise practice lies somewhere between these two extremes.

Dr. Charles West, of London (*Lectures on the Diseases of Women,* London, 1879, p. 3), says, "Some men regard the local ailment as everything; others almost lose sight of its existence, and it is difficult to say which of these two errors is the more mischievous."

I am perfectly convinced that the speculum, and, by its aid, local applications, are frequently used when they are unnecessary or actually hurtful. On the other hand, I am just as convinced that I have cured women of uterine affections by

the aid of the speculum, which, if cured at all by general treatment, would have been so in a very tedious and uncertain fashion.

Let us now look into the past of the vaginal speculum. Hippocrates (B.C. 432) described an instrument, the catopter, which was undoubtedly used as an anal speculum, and Haussmann in his "Geschichtliche Untersuchungen über das Speculum Matricis" (*Zeitschrift für Geburtshülfe und Gynäkologie*, 1878, Bd. ii, p. 366), thinks that the uterine tubes of tin and lead mentioned in this author's works were intended to dilate the cervix uteri in order to treatment of the interior of the uterus, and were not vaginal specula, properly so called.

It is in the works of Galen, who died about A.D. 200, that the first distinct allusion to the vaginal speculum, as distinguished from the anal speculum, is made. But it is certain that the former must have been in use long before his time, because, by the kind assistance of E. Neville Rolfe, Esq., H.B.M. Consul at Naples, and the author of *Pompeii, Past and Present*, I have here to-night reproductions of two specula dug out of the ruins of Pompeii in 1818, the originals of which are preserved in the Museo Borbonico at Naples. The bivalve one is apparently intended for the anus, as it corresponds to the descriptions of such instruments given by ancient authors. The trivalve is undoubtedly a vaginal speculum, as evidenced by its size as well as by the fact that almost precisely similar specula are figured and described by much later authors, such as Albucasis (1085) and Scultetus (1666). Mr. Rolfe sends me the following account of this instrument: —"The three valves standing at right angles to the rest of the instrument are jointly dependent on each other, in the expansion transmitted only to one of them. When the three valves are in contact, the instrument for insertion is about an inch in circumference. By turning the screw one valve is brought nearer the operator, and this forces the other two to open in a sidelong direction, producing thus a slow, regular, and progressive dilatation, as extensive as may be required. The instrument can be held by the two curved handles in the left hand, while the right turns the screw. These movable handles are similar to those fitted to some modern specula. Length, $8\frac{1}{4}$ in.; widest expansion of the valves, $1\frac{1}{2}$ in."

Now, as Pompeii was buried in November, A.D. 79, it is thus evident that the vaginal speculum was in use more than a century before Galen referred to it. He studied at Alexandria and practised at Rome, and it is probable that long before his time the speculum was known in Egypt and

introduced into Italy. Pompeii was a kind of "Rome-super-Mare," and it can be easily believed that in that fashionable and sensual "pleasure haunt of Paganism," as it has been called (*Chambers' Encyclopædia*), diseases of the genital organs would be likely to exist and demand treatment.

About the middle of the fourth century, Ælius, a native of Armida in Mesopotamia, studied in Alexandria, and practically spent his life in condensing the writings on medicine which existed in the famous library of that city. In an old translation of Astruc's *Treatise on the Diseases of Women*, in my possession (London, 1762, Book II, p. 303), in referring to Ælius' compilation, it is stated that "the last book of this work, which contains 112 chapters, is designed entirely to explain the diseases of women, and it is the first treatise of this subject which merits to be read."

Ælius speaks of the use of the speculum as a matter of course, and describes more or less minutely the cases suitable for its use, such as granular erosions of the cervix and malignant ulcerations, and recommends that these should be treated by the local application of verdigris through the speculum.

That the use of the speculum was old in his day we may gather from the fact that he does not speak of any one as the inventor. In regard to this, Dr. Wright (*loc. cit.*, p. 183) states that "Ælius throughout his work so carefully refers any special method of practice to the originator that, whenever his description of treatment has no such acknowledgment, we may conclude his description to apply to the treatment ordinarily pursued by the most able practitioners of the day."

Then came a period when the speculum fell into disuse, and was well-nigh forgotten. The reason of this may be best understood by a quotation from Astruc, the author already mentioned (Book II, p. 303):—"In the ninth century the empire of the West had been destroyed a long time, and its provinces invaded by the barbarous nations, who had not the least regard for sciences. That of the East still subsisted, but grew weaker continually, and the sciences which had flourished there were insensibly lost. At this time, on the contrary, the empire of the Arabians was increasing by a rapid progress, and the power of the Califs, their sovereigns, already extended over a great part of Asia, Africa, and even Europe.

"The sciences and the polite arts, but particularly the science of medicine, follow the fate of empires. Thus, in proportion as they decayed with the Greeks, they began to flourish

with the Arabians, whose empire was, at the highest period, principally under the Calif Almamon Abdalla, who mounted the throne A.D. 813, and who caused the Greek works to be translated into Arabic. By this means all the learning of the Greeks was soon transferred to the Saracens, and it was only in their empire that astronomy, mechanics, and medicine were found, while all other nations, and consequently every part of Europe, were plunged in ignorance.

"This state continued near four or five hundred years, from the year 800 to 1200. During this interval the people of Europe began to be enlightened by the commerce they had with the Saracens—the sole possessors of science. It may be easily judged that this commerce must be carried on in the provinces where the dominions of each lay contiguous to those of the other: in Italy, by the Kingdom of Naples, of which they possessed one part, and which was in the neighbourhood of Sicily, where they were established; and in France, by Languedoc, adjacent to Spain, of which they were the masters.

"In spite of the diversity of religion, and the dislikes which they had for them, the Christians had still some immediate intercourse with them, of which there are proofs; but the greatest part of the commerce was carried on by the intermediation of Jews, who were received among both. By this means the art of medicine was communicated to the inhabitants of the Kingdom of Naples, and to those of Languedoc; and it was owing to this that the two most ancient colleges of medicine in Europe, those of Salerno and Montpelier, were formed in these provinces, and from hence the study of medicine propagated itself from place to place over the rest of Europe; and by the example of the two colleges we have mentioned many others have been successively formed.

"But, as everything is subject to vicissitude, about the eleventh and twelfth century schism and revolt divided the powerful empire of the Califs, and this division was fatal to sciences, which began to decline as well as medicine. Happily we were already sufficiently informed. The study of medicine kept its ground, and even made a progress with us, though guided, indeed, by the footsteps of the Arabians from whom we obtained it, and closely following out the track they had pointed out to us. At that time, and even for long after, nothing was read in the schools but translations of the books of the Arabian physicians" (p. 306).

Now, during the period of Arabian ascendency, the diseases of the female genital organs were given over entirely to midwives, as the Mohammedan religion forbade the examina-

tion of women by male practitioners; and so, amongst other methods of treatment, that by the speculum was little more than mentioned by Arabian writers on medicine.

When we come down to Albucasis (1085 A.D.), one of the last of them, we find him describing and figuring a speculum exactly like that given by Æcius seven hundred years before. The drawings of some of his instruments are so ornate that it is difficult to recognise them as specula, and Haussmann naïvely remarks of one of these figures—"Eine Erläuterung dieses merkwürdigen Instruments fehlt" (*loc. cit.*, p. 374).

In 1305 Bernard Gordon, one of the professors of Montpelier, in a work entitled, according to the fashion of the times, *Lilium Medicinæ*, speaks freely of the use of the speculum in the treatment of the diseases of women, but gives no indication of the kind of instrument recommended.

In 1587 Jacob Rueff, in his work *De Conceptu et generatione Hominis*, figures a trivalve speculum, but speaks of it only as being used to dilate the cervix uteri in difficult labour. He also figures an apertorium (Fig. 5 in Haussmann's plate), which was intended to dilate the vagina and seize the head of the fœtus by means of sharp hooks. Haussmann observes that one could understand this being a dangerous instrument, even although Jacob had not himself suggested that before using it the physician should encourage the woman greatly and himself send up a prayer to heaven. He also observes that if Rueff had left out the crossbars and flattened the blades of his apertorium, instead of having them ending in hooks, he would have invented the obstetrical forceps, and extracted a living instead of a dead child.

About the year 1603 Roderic a Castro, a Portuguese who studied medicine at Salamanca and practised in Hamburg, refers familiarly to the use of the speculum for the examination of, and operations on, the vagina (*De Universa Muliebrium Morborum Medicina*, Hamburgi, 1628).

In 1620 Hieronymus Fabricius delineates a three-bladed speculum, and Vidi Vidius, in his *Artis Medicinalis* (Frankfort, 1626), figures another, somewhat like the Pompeian, but curiously now speaks of it as being also used for dilating the cervix uteri in labour.

In 1627 Galbelshoner, and in 1640 Ambroise Paré, gave figures of vaginal specula, and the latter also showed a tubular speculum (Fig. 6 in Haussmann's plate) closed at the upper end except for a number of holes, and it was intended to permit fluids to reach the cervix uteri by injection.

In 1650 Scultetus, in his *Armamenta Chirurgica*, figures a

bivalve speculum as well as a trivalve, such as had been described by Æcius more than a thousand years before. He states that the former may be used either for the anus or vagina, the latter for the vagina only.

In 1657 Wierus modified the three-bladed speculum by flattening the blades so as more effectually to prevent the vaginal walls from falling into the lumen of the canal.

The earliest complete treatise on the diseases of women was the work of a Scotsman, Jacobus Primerose, who studied in Paris, graduated in Oxford, and practised at Hull. According to Dr. Wright (*loc. cit.*, p. 187), his book, *De Morbis Mulierum*, published at Rotterdam in 1655, "is certainly the most complete, sensible, and practical of all the works on the subject published at that time." He speaks of the speculum in connection with the diseases of the uterus as we would of the stethoscope in connection with diseases of the heart. Curiously enough, he was a strong opponent of the doctrine of the circulation of the blood.

Mauriceau, in his *Traité des Maladies des femmes grosses*, 1682, in speaking of cancerous ulcers, says (p. 358) that they may be felt by the finger and easily seen by a vaginal dilator, and (on p. 310) he gives a drawing of this instrument, which is a three-bladed speculum much like the Pompeian one, except that it has a crank handle to the screw.

Astruc, consulting physician to the French king, in his treatise already quoted, speaks (p. 139) of operating on a diaphragm in the vagina by means of a speculum uteri, and also mentions the use of vapours for uterine disease in the following words—"But this remedy cannot be of any use, at least unless the vapour is conveyed into the wound itself by the help of a funnel of silver or tin, well beaten, of which the small end should be round, pierced with several holes, and long enough to reach even into the orifice of the uterus" (Book II, p. 98).

Levret in *L'Art des Accouchemens* (Paris, 1766), first proposed to use the vaginal speculum for the cure of recto-vaginal and vesico-vaginal fistulæ.

Arnaud in his *Memoires de Chirurgie* (1768), describes a six-bladed speculum of rather complicated structure, and was the first to suggest the employment of artificial light in its use.

In 1821, Recamier introduced his tubular speculum, and, after being improved by Fergusson, its use has been widespread. But it is curious to observe how every now and again there has been an unwitting return to the old Pompeian model.

It is still more curious to note that what was originally an instrument of diagnosis was for some hundreds of years turned into a uterine dilator only. This was probably due to the fact that in mediæval times physicians were called in to see women only in difficult labours, other diseases being attended to by midwives solely.

I shall in a few minutes show you on the screen most of the specula of which we have been speaking, meanwhile let me call your attention to one or two of those most in use at the present time. Of these, the first to be mentioned is Fergusson's speculum. This instrument, the shape of which everybody knows, has, without doubt, been that most widely recognised and most extensively used. The chief advantages it possesses are its simplicity, its capability of being used in a poor light, and the fact that any form of caustic may be employed by its means. But it is brittle, and the edges get worn, and so dangerous for infection, and unless one has quite a number of sizes its introduction gives pain. For diagnosis it is very defective owing to the cross reflections from its surfaces. In connection with this point, the late Dr. Goodell, of Philadelphia (*Lessons in Gynæcology*, Philadelphia, 1880, p. 28), says, "From its length and narrowness, and from the distortion of the parts which it causes, it is the worst speculum possible for diagnostic purposes, and has probably done more to retard the advance of gynæcology than any other cause."

We now come to consider the speculum invented, or rather reinvented, by Marion Sims—because Ulrich, of Vienna, and Simon, of Rostock, had before this time advocated retraction of the perineum, although these suggestions had attracted little notice, and the value of them possibly was not understood even by those who made them.

A few days after Dr. Sims' death, a writer (Paul F. Mundé) in the *American Journal of Obstetrics* said, in an "In Memoriam" article, "An accident . . . and his peculiar technical genius led to the discovery of the perineal retractor with which his name has since been identified, and to which gynæcology may fairly be said to owe its renovation and present elevation" (Sims, *Uterine Surgery*, 1886, p. 14). Sims began using his speculum in 1845, but published an account of it in the *American Journal of Medical Sciences* only in January, 1852.

I am rather anxious to give some details of the theory and use of this speculum, as I find from communication with practitioners that its theory is often misunderstood, and its

usefulness greatly restricted in consequence. Possibly the best way of explaining its theory is to give a sketch of its discovery, which, like that of many other useful things, was due to accident.

The following account differs a little from that in Sims' work on *Uterine Surgery*, but as I had it from his own lips a few years before his death, I prefer to give it from recollection.

When Dr. Sims was in practice in Montgomery, Alabama, a lady was thrown from her horse, and soon afterwards he saw her suffering from retention of urine. After relieving her for the time being, he investigated the physical conditions, and found an acutely retroverted uterus which he could not succeed in replacing by means of his fingers. Thinking it might be more easily managed if the patient were put on her hands and knees, he caused her to assume that attitude, and tried again to push up the fundus, but without result. Then he bethought himself of reaching the fundus better by dragging on the perineum with the forefinger of his left hand, and having done so, was greatly astonished to find that he could reach neither the fundus nor the cervix uteri with his fingers; that the uterus was quite in position, and had retired into the pelvic cavity. Considerably mystified he asked the patient to lie down, and on her doing so the sound of air escaping from the vagina suddenly suggested the true explanation of the phenomena. In the genu-pectoral position the pelvic viscera had a natural tendency to gravitate towards the epigastric region, and only awaited the artificial introduction of air into the vagina to do so, and thus to balloon out that cavity. Having on his hands at that time a case of vesico-vaginal fistula, where the fistulous opening could not be seen by ordinary means, he put the patient in the knee-chest position and used the handle of a bent tablespoon to drag back the perineum, and was delighted to find that on the entrance of air into the cavity he got such a view of the fistula as enabled him to operate on it successfully.

It was thus that Sims' speculum came into existence, and it will now be easily understood that if used in the dorsal, or indeed any position other than the genu-pectoral, or the one now about to be described, it can be of no special service.

Perhaps I could not do better in explaining Sims' position, or, as he called it, the left lateral semi-prone position, than in the inventor's own words:—"For a speculum examination the patient is to lie on the left side, the thighs are to be flexed at about right angles with the pelvis, the right being drawn up a little more than the left. The left arm is thrown behind,

across the back, and the chest rotated forwards, bringing the sternum very nearly in contact with the table, while the spine is fully extended, with the head resting on the left parietal bone. The head must not be flexed on the sternum, nor the right shoulder elevated. Indeed, the position must simulate that on the knees as much as possible, and for this reason the patient is rolled over on the front, making it a left lateral semi-prone position. The nurse or assistant, standing at her back, pulls up the right side of the nates with the left hand, when the surgeon introduces the speculum, elevates the perineum, and gives the instrument into the right hand of the assistant, who holds it firmly in the desired position" (Sims, *Uterine Surgery*, New York, 1886, p. 23).

Gaillard Thomas, of New York, answering the question why Sims' speculum is not more used than it is in America, says (Thomas, *Treatise on the Diseases of Women*, London, 1876, p. 38): "To employ Sims' speculum efficiently, considerable experience with it is necessary. One who has not practised with it so as to become skilful will find it far less useful than the cylindrical and valvular specula in ordinary use. I feel sure that most of those who have tried it and cast it aside, except for operations on the vagina or uterus, have attributed their own shortcomings to an instrument the use of which they had not mastered. Again, it is necessary to have an assistant, and highly desirable to have a practised assistant, to hold the speculum. None of the substitutes for such an assistant have ever proved, or, I think, will ever prove effectual. For this reason, also, the use of this instrument has not become more general."

But, as Thomas confesses, Sims' speculum has certain drawbacks which militate considerably against its use in everyday practice. It requires a skilled assistant. If the uterus is fixed by adhesions, or if the vaginal walls are loose, a second instrument is necessary to hold forward the base of the bladder, and bring the cervix into view. Nevertheless, its general excellence remains undoubted.

Seventeen years ago I began to get dissatisfied with the specula I used at my work in the Western Infirmary—the three in use being Sims', Cusco's, and Fergusson's. Sims' often gave poor results, unless the patient had her clothes loosened, and, like Fergusson's, it was not self-retaining. Cusco's had such a small vulvar orifice as to prevent anything in the shape of ordinary manipulation. Fergusson's had also this defect, unless employed of such a size as to give rise to a good deal of pain in the average vagina.

So I began to consider the possibility of devising an instrument which could be used rapidly in any vagina, and without unbearable pain. I tried a pair of blades opening by means of a spring: this failed because the points of the blades fell too easily together, owing to their distance from the spring. Then came two blades slipping on a semicircular bar, which did better, but were difficult to manipulate with slippery fingers. Afterwards this was modified to a bar for each blade, and these bars connected by a joint with leg-like levers to flex them. Lastly, these legs were elbowed, so as to take them out of the way of any manipulation carried on between the blades in the vagina. In 1883 I published an account of this modification of the speculum in the *American Journal of Obstetrics* (March, 1883), and I may mention in passing that this was the only literary effort I ever made which was recognised by a handsome return in the shape of current coin of the realm. Here, I think it just to say that Mr. Hilliard put himself to great trouble and exercised much patience in working into material form the ideas I had put on paper.

The good points in this speculum to which I should like to draw your attention are these:—(1) When the blades are closed they occupy so small a space that they are capable of being introduced into a very narrow vagina; (2) the points of the blades can be opened as far as the upper part of the vagina will allow, and so take advantage of all available space there; (3) they can be opened at the vulvar orifice, so as to give all possible room for manipulation in that situation; (4) these two mechanical movements are independent of each other, and so can be made to suit each individual vagina, with the result of gaining all possible room and yet avoiding unnecessary pain; (5) the instrument does not require to be screwed up into position and is self-retaining, and hence can be used rapidly and easily kept clean.

The drawbacks to it are these:—It needs a little experience to use it easily; mineral acids and iodine affect the metal of which it is made; and where the vagina is very large, and the walls very loose, they fall into its lumen and obscure the view.

Perhaps I should add that in operations on the vagina and cervix, where the uterus can be drawn down by Emmet's double tenaculum, I am rather fond of using two copper spatulæ, bent so as to hold aside the labia and the vaginal walls. These are convenient because they do not prevent the cervix from being drawn as near the operator as the condition of the uterus will allow.

In my introduction to this address, I spoke of certain members of our profession who believe in the constitutional treatment of uterine disease almost to the entire exclusion of local measures; some will not even inquire other than generally into the local condition. The various theories and forms of practice held and used in this connection during the present century are a very curious and tempting study, and as they have hinged largely on the reintroduction of the speculum, we may fitly conclude this paper by passing them very shortly in review.

In the early part of the century gynæcologists were divided into two sections — one, mostly English, and represented by men such as Sir Charles Clarke and Dr. Gooch, which believed that uterine disease was caused by constitutional derangements; the other, mostly French, which believed that the local disease was of primary importance, and that it gave rise to accompanying constitutional trouble. Of this party Recamier and Lisfranc were the chief representatives.

Then in 1845 came Dr. J. H. Bennet, of London, with his theory that displacements, ulcerations, hæmorrhages, and all pelvic troubles were due to inflammation of the uterus, and for some years he carried everybody with him. After this came Dr. Tyler Smith, who sought to prove that most of the cases of uterine disease met with originated in a morbid condition of the mucous glands in the cervical canal, and that pelvic disease was to be nipped in the bud by attention to early symptoms of disorder in this portion of the genital tract.

Again, in 1854, at the discussion on the subject in the Academy of Medicine of Paris, Velpeau took up the position of champion of the displacement theory. "I declare," he said, "that the majority of the women treated for other affections of the uterus have only displacements, and I affirm that eighteen times out of twenty, patients suffering from disease of the womb or of some other part of this region, those for instance in whom they diagnose inflammation, are affected by displacements" (Thomas, *Diseases of Women*, Philadelphia, 1876, p. 33).

This view was afterwards modified by Dr. Graily Hewitt, of London, to the extent of asserting that it was not to displacements in general that bad effects were to be traced, but almost only to flexions of the uterus.

In 1850 Dr. Tilt, of London, promulgated his belief that, as a rule, pelvic diseases of women radiate from morbid ovulation, and that ovaritis was the one thing to watch for and to

deal with if discovered. Since that time different men have combined such portions of these various theories as their disposition and fancy dictated, and have regulated their practice accordingly.

What are we, in the end of the century, to think of all this? Is it not that we should carefully observe for ourselves the facts of disease, and in their light try to sift from each of these theories what of truth lies concealed within it?

And while we should not neglect the use of every other means of observation and physical diagnosis, I am clearly of opinion that we must look to the intelligent use of the speculum as a chief means of arriving at a knowledge of facts in connection with diseases of the pelvic organs, and of intelligently watching the effects of treatment.

Dr. Hector C. Cameron proposed a vote of thanks to the President for his address. He had listened to it with great pleasure, and had nothing but praise for the excellent historical account of the subject, and for the display of instruments illustrating the evolution of the instrument from its earliest use till now. Both indicated a vast amount of labour.

Meeting XIV.—27th March, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—A DEMONSTRATION ON THE ROENTGEN RAYS.

By Dr. John Macintyre.

Dr. Macintyre referred to Roentgen's original paper, to his experiments for rendering the action of the x rays visible, and to his demonstrations by means of photography. He also gave the following list of apparatus required:—(1) Source of current; (2) transformers or induction coil; (3) Crooke's tubes; (4) accessories.

With regard to photography he described the usual minutiæ proper to all photographic work and their special application in connection with the x rays.

He also showed the cryptoscope, and illustrated its use in revealing the internal structures to direct vision.

A number of lantern slides were thrown on the screen, and a large collection of prints was exhibited on the table, all indicating anatomical and pathological detail.

Meeting XV.—3rd April, 1896.

Mr. H. E. Clark *in the Chair.*

I.—Sequel to "A Remarkable Case of Unilateral Hypertrophy in a Child" Reported in March, 1894.

By Dr. A. N. M'Gregor.

Since this case was reported to the Medico-Chirurgical Society in March, 1894, and published in the *Glasgow Medical Journal* of the same date, considerable changes in the size of the limb have taken place, and the patient's friends applied for his readmission to hospital that something might be done to relieve him of the difficulty of locomotion. His general health was good, and he had no complaint save that the weight and shape of the right foot and leg prevented him walking.

The alterations in size during this interval of a year and a half are best shown in the tabular statement of measurements which follows. It will be noticed that the increase is limited to the lower part of the leg and to the foot, that there is a greater difference in thickness than in length, and that the growth in length of the upper part of the affected (right) limb is less than that of the sound limb. This is particularly noticeable in the first and second measurements—eighteen months ago his right leg was much longer above the knee than the left, now the difference is reduced in the first case from $2\frac{1}{4}$ in. to $1\frac{7}{8}$ in., and in the other from $1\frac{1}{4}$ in. to $1\frac{1}{8}$ in. The increase in thickness is most marked at the ankle—the difference of circumference at the level of the malleoli was $1\frac{9}{16}$ in. and is now $3\frac{3}{8}$ in. The hands, too, exhibited a difference at this second examination—the right displacing $\frac{1}{2}$ oz. more water than the left—which had not been previously noted.

It should be remarked that the tendency to cyanotic discoloration of the skin on exposure to cold was more pronounced, and though still most marked in the right limb, was more apparent over the whole body than previously; otherwise there is no alteration in the signs noted in the first report.

The right hand displaces $5\frac{3}{4}$ oz. of water, the left, $5\frac{1}{4}$ oz., showing a difference of $\frac{1}{2}$ oz. The hand was immersed in both cases to a point measured from the tip of the middle finger.

At the request of the parents the leg was amputated on the 22nd July. The patient took chloroform badly, coughing a

good deal, and at times becoming quite blanched. The mode of amputation was Carden's, and a good deal of blood was lost, principally by venous hæmorrhage from the subcutaneous tissue. Immediately after the operation a curious set of nervous symptoms ensued, and patient became quite maniacal, having to be restrained in bed for about an hour. At the end of this excited period he became pale and blanched, and never regained his natural colour. Vomiting was persistent,

	First Measurement.			Second Measurement (18 months later).			Changes of the Difference.	
	Right Leg.	Left Leg.	Difference.	Right Leg.	Left Leg.	Difference.	Increase.	Decrease.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
Length from occiput to sole of foot,	49¾	47½	2¼	50⅜	48⅞	1⅝	...	⅝
Length of foot,	7	6½	½	7½	7	½	...	...
Length from ant. sup. spine to int. condyle,	15	13¾	1¼	15⅝	14⅝	⅛	...	⅛
Length from ant. sup. spine to int. malleolus,	24	22¾	1¼	26	24½	1½	¼	...
Circumference over both malleoli,	9¼	7 5/16	1 9/16	11	7⅝	3⅜	1 11/16	...
Circumference over point of heel and instep,	11½	9½	2	12¼	10	2¼	¼	...
Circumference at middle of the calf,	10¼	9⅜	½	11¼	9⅞	1⅜	⅞	...
Breadth, by calliper measurement, between the two malleoli,	2¼	2 1/16	3/16	2⅝	2⅛	½	1/16	...
Breadth, similarly taken, of head of tibia,	3 3/16	2 1/16	1⅛	3⅞	3	⅞	...	¼
Occipito-frontal measurement of the head,	20¾ ins.			21⅛ ins.			⅜	...
Occipito-mental measurement of the head,	23¾ ,,			24⅛ ,,			⅜	...

and could not be stopped; on some occasions the vomited matter contained blood partly digested. The temperature was very erratic, going up to 102° F. after operation, falling to normal in the afternoon, and afterwards becoming subnormal. Death occurred forty-six hours after operation, the patient never having rallied.

The following is the *post-mortem* report by Dr. Lindsay Steven:—

"Well nourished, but exceedingly pale body. The right lower limb has been amputated at the lower third of the thigh. The amputation wound is quite recent, and no healing has taken place. The heart presents a healthy appearance.

Both lungs are somewhat firmly adherent, and each presents distinct manifestations of tuberculosis of the upper lobe; for the most part the tubercle is recent, consisting of catarrhal pneumonia and miliary tubercles extending, in the usual way of a phthisical lesion, into the lower lobe.

"In the apex of the left lung there is a considerably older caseous nodule about the size of a pea.

"The liver and kidneys present healthy appearances. The spleen is not enlarged, but is pale in colour and soft in consistence. It is noted that the subcutaneous and subperitoneal fat is excessive in amount. The femoral vessels present healthy appearances, but it is noted that the right thigh is much thicker than the left, although the skin presents no abnormal features.

"On removing the brain a peculiar enlargement and hardness of the optic commissure is discovered, the nature of which is not at present determined; the appearance, however, is highly suggestive of a neoplasm in this situation. On dissection it is thought that the right optic thalamus is unduly prominent and hard. The pituitary gland is carefully examined. It is not enlarged, and its tissue to the naked eye presents quite healthy appearances. The brain is preserved for further examination."

I regret that owing to an accident to the specimen it has not been possible for the pathologist to make a report of the microscopic appearances. The presence of the tumour is distinctly interesting, and may help to elucidate the difficult subject of the relation between hypertrophies of the limbs and brain lesions.

Mr. H. E. Clark said that this was a most interesting case as showing the connection between head and leg; the limited hypertrophy was suggestive of a local acromegaly.

Dr. Lindsay said he had a case under observation just now of congenital hypertrophy of one arm. The arm is twice as large as the other, the bones also are enlarged, and the arm is increasing with the general growth of the body. There are no symptoms of a cerebral character.

II.—TWO CASES OF BRAIN TUMOUR IN WHICH RECOVERY TOOK PLACE.

By Dr. T. K. Monro.

The word recovery is here used to indicate that in each case the patient ceased to be troubled by any symptom except blindness, and became able to lead and enjoy an active life.

Case I. Summary.—*Headache; Vomiting; Bilateral acute optic neuritis passing into consecutive atrophy; Persistent bilateral absence of knee-jerk; Slight paresis of left oculomotor nerve; Disappearance of all symptoms except blindness and absence of knee-jerks.*

F. N., schoolboy, first came under observation at the Dispensary of the Royal Infirmary, in February, 1895, when he was nearly 7 years old. The following account of his condition is from notes taken on 25th February, 1895:—

Patient had a fall last summer (1894), and struck the left side of his forehead; he did not, however, suffer from any obvious consequences, but enjoyed good health until his present illness began about two months ago. The first symptom complained of was pain in the fore part of the vertex of the head. This pain occurred daily, persisted for a couple of hours, and then passed off, apparently completely. At first patient cried out with the pain, but of late he has been hanging his head forward instead of crying. In the earlier part of his illness his sleep was sometimes interrupted, sometimes actually prevented, by the headache, but he is not known to have cried out during his sleep. He suffered much from vomiting, and rejected everything, even a drink of water. He even vomited in the morning before anything was swallowed. This symptom was entirely removed by subnitrate of bismuth and bicarbonate of sodium, which he got at his first visit to the Dispensary, three days ago. The same treatment has had the effect, it is said, of regulating the bowels, which previously were constipated. The tongue is coated at present with a whitish-yellow fur.

Patient is said to get hot at times, but he does not sweat. His pulse is over 120. He has a slight cough, but this is nothing new. He has a lethargic aspect, and has lost much flesh. A considerable glandular swelling is found over the side and lower border of the lower jaw on the right side; this has been present for five months.

On the 3rd inst. (three weeks ago), patient began to complain of dimness of vision. With the left eye he cannot count fingers at a few inches, but he can do so with the right. Both pupils are somewhat large, the left being perhaps the larger of the two. There is no strabismus, and no complaint of diplopia. Ophthalmoscopic examination reveals double optic neuritis, with some extension of the inflammation on to the retina, and occasional hæmorrhages.

There is no paralysis of the face. The grip of the left hand is rather stronger than that of the right, but patient is said to

be left-handed. The knee-jerk is not obtainable on either side (Jendrassik), but it is not certain that this is not due to lack of intelligence on the part of the patient.

Patient is somewhat pigeon-breasted, and the ends of the long bones are enlarged. Nothing definitely abnormal is discovered in the heart or lungs. There is a tendency to congenital inguinal hernia on the right side. Patient is one of thirteen children, of whom eight survive. The five all died of "teething," at ages varying from seven to fourteen months four having the bowels affected, and the remaining one having convulsions. The father has suffered from cough since his boyhood, but is quite fit for work. The mother has always been healthy.

Treatment.—Hydrarg. subchlor., $\frac{1}{6}$ gr.; sodii bicarb., $2\frac{1}{2}$ gr. M. et ft. pulv. Sig.—One powder night and morning.

In the middle of March, 1895, it was noted further that there were no fits or giddiness, no ataxy on standing or walking, no local tenderness of the head, no affection of speech or hearing, no impairment of sensation in the face or of the ocular movements, no paralysis, spasm, or muscular atrophy (apart from some general emaciation), no affection of the sphincters, and no albuminuria. The lips and cheeks were of fairly good colour, and the general condition was not worse. The blindness, however, was at least as great as before; the optic neuritis was still an acute affection, but the swelling in the situation of the disc was becoming white, particularly in the case of the right eye.

Two months later (May, 1895), vomiting had quite ceased, and headache was very occasional. The left eye was now found to be rotated slightly upwards as compared with the right, and, moreover, there was a suspicion of slight divergent strabismus. Optic neuritis was passing into consecutive atrophy, with white discs and narrowed vessels. The state of vision was nearly as at present (April, 1896).

In the course of the summer, patient's general condition continued to improve. Headache ceased to trouble him. As late as August, there was still noted a slight upward rotation of the left eyeball, and there was a scarcely appreciable divergence of the visual axes. By this time, consecutive atrophy was fully established in the optic discs.

In March, 1896, patient was still keeping well, and apart from his blindness would pass for a very healthy boy. Strabismus and the upward rotation of the left eye were no longer to be seen, but slight nystagmoid movements could be observed from

time to time; otherwise there was no impairment of the ocular movements. The right pupil was slightly large, and contracted distinctly to the direct stimulus of light, but scarcely at all consensually. The left pupil was rather larger than the right, and responded very slightly indeed to the direct stimulus of light, but contracted freely when light was admitted to the opposite eye. Fingers could not be counted with either eye. The sense of light and darkness, as tested by daylight in a room, was preserved to the right eye, but lost to the left. Both knee-jerks were completely absent (Jendrassik's test).

Commentary.—These symptoms, though few in number, constitute, I think, a combination which can only be due to the presence of some new growth within the cranium. Accurate localisation is not possible at present, but the interference with the knee-jerk suggests a lesion of the cerebellum, which is a very frequent seat of tumour in children. Experimental and pathological facts show that a lesion of one cerebellar hemisphere may cause loss of the knee-jerk on the opposite side or on both sides. But tumours of the middle lobe may cause continuous or intermittent absence of the knee-jerk, so that even if we venture to suspect the existence of a tumour in the cerebellum, we can affirm nothing as to which part of the organ is its seat. Paresis of the left third nerve, on the other hand, suggests a lesion in or near the left crus, but it must be remembered that cerebral tumours are often multiple. It is by no means rare for tumours of the brain to become stationary, and this is specially true of tubercular growths; but that these are not the only variety that may cease to grow will be shown immediately.

Case II. Summary.—*Illness characterised by severe head symptoms almost, if not absolutely, characteristic of intracranial tumour; Recovery and thereafter good health, except during an attack of typhus, for about forty-five years; Death from cancer of pylorus; Myxoma found in cerebellum.*

Jas. R. consulted me at the Dispensary of the Royal Infirmary, in August, 1895, on account of gastric symptoms, epigastric pain, vomiting, hiccough, &c., of three months' duration. He had also been losing flesh during the same period. To complete his history as regards the gastric affection, I may now add that, as the dyspepsia continued severe in spite of treatment, I sent him into the hospital, where he came under the care of Dr. Lindsay Steven. On 25th October, an

abdominal section was performed for diagnostic purposes, and also with a view to pylorectomy if the conditions should prove favourable, but the latter procedure was decided against. The general strength gradually failed, and death took place on 16th December.

When this man first came under my observation, however, I felt quite as much interested in his blindness as in his dyspepsia, and I endeavoured to ascertain its cause. The following account is from notes taken in the first week of August:—

Patient, who is aged 63, has worked for thirty-three years in the Blind Asylum. His previous health—since the time when he lost his sight—has been good, though not very robust. [After he was admitted to the wards, it was ascertained that he had typhus fever at the age of 29.] He is blind in both eyes, though retaining a sense of light and darkness. The pupils are somewhat large; each contracts actively on exposure to light.

Ophthalmoscopic Examination.—Both discs are perfectly white, like paper. The vessels are little if at all contracted. The discs are not obviously contracted in diameter. There is a posterior staphyloma in each eye around the *inner* margin of the disc. Patient regards his left eye as the "weaker" of the two. The knee-jerks are normal.

Blindness set in at the age of 16, in the course of a severe illness which confined him to bed for twelve months. For three or four months of this time he knew no one. It appears to have been a severe head affection impairing—for the time at least—hearing, smell, and the strength of the left side especially, as well as sight. There was severe headache, but patient does not remember about vomiting. Weakness was the first symptom. He thought his illness was brought on by playing in the open air with cold and wet feet after working in the pit. The family history throws no very distinct light on the case.

Intracranial tumour, which is the most common cause of severe optic neuritis, such as might lead to the optic atrophy met with in this case, is almost the only condition that would account for the illness which this patient had at the age of 16. It is conceivable that some rare form of meningitis or some other rare condition might produce similar results, but from the point of view of relative frequency, the probabilities are overwhelmingly in favour of that common affection, cerebral tumour. Indeed, the one remarkable feature about this illness,

though by no means a rare occurrence in connection with tumours of the brain, is that it ended in recovery.

The symptoms, therefore, that this patient complained of in his last illness, all pointed to the abdomen and not to the head. The sole purpose for which the head was opened at the autopsy was to ascertain what remained of the lesion which was so terribly active forty-six years ago, and had been absolutely at peace ever since.

The *post-mortem* examination was made by Dr. Workman, and the following account of the appearances is based on his report in the pathological register:—

17th December, 1895.—The *heart* was small, with tortuous and atheromatous coronaries, but otherwise normal. Both *lungs* were emphysematous, and the lower lobe of the left lung was also œdematous.

"Numerous small white nodulations of the mucous membrane" were observed in the lower part of the *œsophagus*, which was in other respects healthy.

The *stomach* was closely adherent to the liver, and the transverse colon to the stomach. In the gastro-colic omentum, there was a hard nodulation, having somewhat of a cicatricial character. The stomach was of small size, and its wall was considerably thickened, especially towards the pylorus. The pylorus itself was very small, with a greatly thickened wall. The wall of the intestine was thin, but otherwise the bowel was healthy throughout.

The *liver* had on its upper surface two very small abscess formations, but no secondary malignant disease. The gall-duct was pervious, and the gall-bladder contained a large nodulated calculus.

The *spleen* was slightly congested. The *pancreas* was adherent to the stomach at one part, but was otherwise normal.

The *kidneys* were in a condition of well marked interstitial inflammation, with considerable atrophy of the cortex. The *prostate* was somewhat enlarged.

"The brain is removed, and a myxomatous tumour is found almost replacing the left half of the cerebellum. The optic chiasma and nerves are markedly atrophied. The ventricles are found to contain an excess of fluid, but the cerebrum otherwise presents healthy characters."

Microscopic sections of the tumour have been prepared by Dr. W. K. Hunter, and confirm the inference drawn from the appearances of the gross specimen as to the myxomatous nature of the cerebellar tumour. Longer and shorter cells of ellip-

tical form are seen embedded in an intercellular tissue which has undergone mucous degeneration.

6th February, 1896.—"Sections of the stomach wall from near the pylorus are examined to-day, and show an extension of epithelial cells among the muscular bundles of the middle coat. The cells have a glandular arrangement in the meshes of a connective tissue stroma. The muscular coat is itself enormously hypertrophied."

All the evidence then points clearly to the conclusion that the patient's illness at the age of 16 was due to the myxoma of the cerebellum. This tumour involved the left lobe, and the patient told me that the weakness in that illness affected specially the left side. It is well known that a cerebellar tumour on the left side may cause paresis of the right side of the body by pressing upon the pyramidal tract above its decussation; but there is experimental, pathological, and clinical evidence to show that a destructive lesion of the cerebellum on one side may directly, and without interfering with any other part, cause paresis on the *same* side of the body. (See J. S. Risien Russell, *British Medical Journal*, 18th May, 1895, pp. 1080, 1081.)

In the present case, the myxoma after a time ceased to progress, and the patient recovered from all his symptoms except his blindness, which was perpetuated by the optic atrophy; this atrophy followed, we may be certain, upon optic neuritis. After many years of health and activity, his death was brought about by a new tumour, of a different kind, and in a different situation—a cancer of the pylorus.

Dr. Hunter thanked Dr. Monro for bringing up these two interesting cases. He supposed the neuritis was due to some irritation of the optic tract, but he would like to know why this should occur.

Dr. Hawthorne said the two cases were of the first importance, as tumour of the brain suggested usually such a hopeless prognosis. He had seen two cases of a similar nature in young people. In each case the patient was extremely ill with headache, vomiting, and other evidences of intracranial pressure; there was also double optic neuritis. In time the symptoms subsided, but the patient remained blind from consecutive atrophy. Such cases are of great moment as influencing prognosis, and also as bearing upon the question of surgical interference.

Dr. Rowan said he had a case of a girl, æt. 15, whose sight

failed after an acute illness, at which time she "went off her head." There was a tubercular history. She suffers from headache occasionally, and, with the exception of blindness, she is healthy in every respect. With spectacles she can perceive the light.

Mr. H. E. Clark said the cases were interesting to surgeons, as indicating a possibility of recovery from cerebral tumour. In the case of the boy the tumour was probably tubercular and cerebellar, though there were few symptoms of cerebellar disease. The double optic neuritis, the affection of the third nerve, and the absent knee-jerk were cerebellar, but there was an absence of cerebellar gait, and no functional disturbance of the kidney. In Dr. Barlow's cases, one had polyuria and the other glycosuria.

Dr. Monro was indebted to the members for their comments on the cases. With regard to the occurrence of optic neuritis, there were many theories advanced to explain it, but there was no satisfactory explanation as yet. Gowers said that the occurrence of optic neuritis indicated some irritating process going on within the cranium. Clinical experience shows us that a tumour of the cerebellum causes optic neuritis, while tumour of the medulla or the motor area does not.

III.—MELÆNA NEONATORUM, WITH MICROSCOPIC SECTIONS OF AN ULCER OF THE STOMACH, THE PROBABLE SOURCE OF THE HÆMORRHAGE.

By Dr. T. K. Monro.

This paper was published in the *British Medical Journal*, 20th June, 1896, p. 1501.

Dr. Russell said he had seen two similar cases. In one the child vomited blood and died; in the other case the boy began to bleed at the rectum two days after birth, and bled for a week. He was still alive and healthy, but remained anæmic.

IV.—NOTES ON THE EUCALYPTUS OILS.

By Dr. Bell Todd.

The notes submitted for your consideration chiefly refer to the oils of eucalyptus used medicinally within the last ten years. Few substances have attracted more attention and evoked so much contention in the minds of pharmacists either at home or abroad as oil of eucalyptus. There is scarcely any other substance whose materia medica is so little understood

on account of the differences of opinion regarding its original source.

Referring to the *British Pharmacopœia* of 1885 as our official guide, we find that oil of eucalyptus is distilled from the fresh leaves of *E. globulus* and *E. amygdalina*, and probably from other species of eucalyptus.

The uncertainty at that time which prevailed as to the source of the oil is confirmed when we turn to consider shortly the history of the oil first in Australia and then in other countries.

History of the Production of the Oil.

In 1854 Mr. Joseph Bosisto, C.M.G., C.B., erected the first still for the distillation of the oil from the leaves. *E. globulus* and *E. amygdalina* being in abundance in the neighbourhood of the distilleries were consequently more drawn upon. *E. amygdalina* was by preference mostly used, as it yields about four times more oil than *E. globulus*.

It is important to notice that, although *E. globulus* yields only about one-fourth of the oil compared with *E. amygdalina*, it is a hardy plant, and suits itself to various climates. When young it possesses luxuriant foliage, and has always been a favourite with Australian horticulturists. From 1 lb. weight of the seeds of *E. globulus* alone it is said that 160,000 plants can be raised.

In 1856 M. Ramel had his attention drawn to the anti-malarial effects of *E. globulus*, and acting on the suggestion of Baron Sir Ferd. v. Mueller, botanist to the Government of Victoria, he reported to the French Government, who introduced the *E. globulus* species into Algeria between 1865-67, and shortly afterwards into Corsica. The most successful results followed in both instances, proving that the presence of these plants in marshy and unhealthy districts improved not only the health of the locality, but prevented the occurrence of malarial fevers in districts known to be pestilential in that respect.

In Algeria the French carried out the plantation of *E. globulus* on a large scale, which afterwards turned out a source of revenue to them, as we shall soon relate.

As the *E. globulus* variety was the most persistently advertised, and the raising of the young seedlings had become a matter of industry, it is not difficult to see how this particular variety became transplanted to different parts of the world at or about the same time.

Thus, in 1870, we find that the plants had been introduced

into the following countries and states:—Algeria and Corsica, already noted; Spain (Malaga), South of France, Italy, Sicily, Holland, California, Louisiana, Mississippi, Florida, Mexico, West Indies, Brazil.

In 1871 M. Raveret-Wattel published a report on oil of eucalyptus to the Société d'Acclimatation de Paris, and besides dwelling on the sanitary powers of the plant, he recommends the oil for use in putrid fevers, and for application in cases of fœtid suppurations owing to its marked antiseptic qualities.

In 1880 we again hear that the oil of *E. globulus* is antiseptic, and can be used as a substitute for carbolic acid, then the leading germicide; that it is also becoming largely used in the treatment of lung diseases by inhalation, and that its antiseptic properties are due to the eucalyptol it contains (a body which at that date had not been isolated).

In 1885, when eucalyptus oil became an official preparation in the British Pharmacopœia, it already had the same status in the Pharmacopœias of Belgium, France, and the United States; but not in those of *Austria*, *Denmark*, *Germany*, or *Russia*. At this time there was no reason to doubt that most of the oil of *E. amygdalina* and *E. globulus* was of Australian origin. It is therefore during the past ten years that we find such important changes taking place in the production and sources of the oil.

In the *Pharmaceutical Journal* (22nd October, 1887, pp. 907, 908), it is stated that Algeria and California are becoming powerful competitors with Australia for the production of *E. globulus* oil. Algeria was stated to be able to supply the product of 3,000,000 *E. globulus* trees. This is important considering that the plants themselves were only introduced into Algeria about twenty years before. In order to compensate for this, it is mentioned that in Australia its manufacture was extending from Victoria to South Australia and Tasmania.

In 1888, while the Australian product was in a most flourishing condition, it was announced by both the French and American manufacturers that the Australian *E. amygdalina* oil was destitute of eucalyptol, while in Germany Messrs. Schimmel & Co., of Leipzig, reiterated a denial somewhat autocratically to the same effect (see *Pharmaceutical Journal*, 1st September, 1888, p. 64), which did much to harm its market value.

The matter was, however, investigated in Prof. Wallach's laboratory at Bonn by Herr Gildemeister (see *Phar. Zeitung.*,

22nd August, 1888, p. 494), who found a substance, *phellandren*, to be the principal constituent of *E. amygdalina* oil. Wallach himself discovered a delicate test by which hydrobromic acid formed a eucalyptol compound (*Pharmaceutical Journal*, 28th July, 1888, p. 61). He also ascertained phellandren to be present, while eucalyptol was present in appreciable quantity.

On this point a discussion arose between those interested as to whether or not leaves of both *E. globulus* and *E. amygdalina* had not been previously mixed together before distillation. One would have thought that subsequent tests would have set this matter at rest. This was proved two years later by the late Mr. Davies and Mr. Pearmain of the Pharmaceutical Society's Laboratory, London (see *Year-book of Pharmacy*, 1891),[1] who gave a table showing the percentage of eucalyptol present in the fraction of *E. amygdalina* oil coming over at 170° to 175° C.

In this year (1888) a new oil made its appearance, distilled from the *E. maculata* var. *citriodora*, with marked antiseptic properties, and a delightful citron or verbena odour, manufactured at Gladstone, Port-Curtis District, Queensland, where they were using half a ton of the fresh leaves daily (see *Pharmaceutical Journal*, 12th April, 1889, p. 837).

After this time there is a notable falling off in the production of the Australian *E. amygdalina* oil.

In 1889 it became fashionable to hear and speak of the virtues of eucalyptol, the leaders being the Germans, who lauded its antiseptic qualities and its use in throat diseases. The Australian *E. globulus* oil, it should be noted, was found to be rich in eucalyptol, but it had to compete with similar products manufactured in France, Spain, and crude oil brought to Germany and refined. Being therefore far from the European market the Australian *E. globulus* oil next began to decline. In fact, at this time, oil of *E. globulus* may be said to have reached its greatest production, seeing that it was being produced in increasing quantities, not only in Algeria, California, France, and Spain, but in Italy and Sicily. In consequence of this, it was certain that, the oil being derived from so many sources, its composition and quality were so very variable, remarks Mr. Holmes, curator, Pharmaceutical Society's Museum, London, "that they could not be depended on, its odour particularly varying with nearly every sample, and presenting an opportunity for adulteration not to be thought of under conditions where uniformity of composition prevailed."

[1] *Chemist and Druggist*, 22nd August, 1891, p. 293; *Pharmaceutical Journal*, vol. xvii, p. 235; *Pharmaceutical Journal*, vol. xxiii, p. 205.

It then became common to add turpentine as an adulterant, as it can be added to the oil of *E. globulus* without interfering with the percentage of eucalyptol present.

As it was believed at this time that the usefulness of eucalyptus oil depended on the amount of eucalyptol it contained, in 1889 a new oil, prepared from *E. odorata*, was introduced from South Australia, where it grows in great abundance. Its therapeutic uses were claimed as equal to those of *E. globulus*, and it contained a very large quantity of eucalyptol.[1] In order to compete with this oil, it was announced that in Spain *E. globulus* oil had been found so rich in eucalyptol as to solidify in a cooling mixture to a white paste (see *Pharmaceutical Journal*, 12th October, 1889).

In 1890-91 the Australian distiller, Mr. Bosisto, along with other manufacturers, followed this up by introducing a new oil distilled from the *E. oleosa* (see *Pharmaceutical Journal*, 19th April, 1891, p. 940) as being very rich in eucalyptol, so that on being cooled it solidifies into a pasty mass.[2]

This variety is worthy of notice, as being the first oil obtained from what are known in Australia as the "mallee eucalypts," the term "mallees" being the aboriginal name for the dwarf eucalypts growing in the arid districts in the interior of Victoria, part of New South Wales, and South Australia. Mr. Robert Hedger Wallace, late agricultural expert to the Victorian Government, says—"They are shrubby in appearance, seldom more than 6 to 8 feet in height, and send up many stems from one short stock; their roots penetrate the substratum to a very great depth." They comprise a great many species, but the chief are *E. dumosa*, *E. oleosa*, *E. gracilis*, *E. incrassata*, *E. pyriformis*, *E. uncinata*, &c.

From South Australia, at Kangaroo Island, in 1891, an oil was obtained from *E. cneorifolia*, and which differs from any other in having the odour of dill or "cummin." Baron Sir Ferd. v. Mueller regarded it as a variety of *E. oleosa*. Mr. J. H. Maiden, of Melbourne, in *Notes on Australian Economic Botany*, p. 136, says—"It differs from any other eucalyptus

[1] The following details are given (see *Pharmaceutical Journal*, 20th April, 1889):—The crude oil has a specific gravity of 0·93 at 16° C., the rectified oil a specific gravity of 0·909 at 18° C.; very rich in eucalyptol, contains no phellandren. The residue from the rectified oil boils between 220° C. and 260° C., with a specific gravity of 0·945, and is used for incorporating with disinfecting soaps.

[2] It has a specific gravity of 0·923 at 15·5° C. In distillation 1 per cent passes over below 170° C., 72 per cent between 170° and 180° C. (this fraction contains almost all the eucalyptol present in the oil), 18 per cent between 180° and 190° C., and 8 per cent between 190° and 225° C.

oil he has examined, in having a secondary odour of 'dill' or 'caraway.'" This oil is rich in eucalyptol, from which it is extracted at present by Faulding's patent process, they being also the distillers of the oil. This oil is very rich in an aldehyde, cumminic aldehyde, resembling phellandren in its action.

In a paper read before the Pharmaceutical Society at London, 13th April, 1892, on "The Eucalyptus Oils of Commerce," by Mr. Holmes and Mr. C. B. Allen, it is pointed out that several eucalyptus oils, especially when recently distilled, possess an ingredient which causes a sense of irritation in the throat; they suppose the ingredient to be of the nature of an aldehyde; and it is suggested that its presence is probably of considerable importance from a therapeutic point of view, seeing that oil of eucalyptus is so largely used by inhalation in diseases of the lungs.

It is noted that oil of *E. amygdalina* and *E. dumosa* are preferred in Edinburgh and elsewhere, and that this preference seems remarkable in connection with the statement that *E. amygdalina* oil owes its medicinal value to the presence of eucalyptol, while the oil, on the other hand, has been shown to contain, without contradiction, a considerable quantity of phellandren.

It was also a remarkable fact that much of the eucalyptol that was first used in medicine consisted of the first portion passing over in the distillation of the oil, and contained a quantity of phellandren. The evidence, therefore, seems to point to the fact that oils containing " phellandren are preferred for the treatment of lung diseases."

Since 1892, I have used oils of *E. oleosa* and *dumosa* somewhat extensively by way of experiment, both in hospital and private practice, for inhalation in chronic bronchitis, phthisis, and in catarrhal cases, where there is a tendency to coughing set up by reflex action, with most successful results, particularly in a case lately under treatment at the Glasgow Samaritan Hospital, where the patient suffered from a large abdominal hernia, accompanied by a reflex cough which was set up immediately on assuming the upright position. Various remedies had been tried on former occasions, but without any relief.

My experience of the action of the oil is that the results are more marked now than four years ago, when the oil was sent direct from Mr. Bosisto, and that in keeping it in a cool place in its original package it has very wonderfully improved, and allowed of the development of its aldehyde constituents.

With regard to oil of *E. maculata*, var. *citriodora*,[1] which contains nearly 30 per cent of a "ketone" called "citral" or citronellon ($C_{10}H_{16}O_2$), and containing an alcohol, I have employed it in giving relief in asthmatic bronchitis. This oil contains no eucalyptol compounds whatever, still it is antiseptic. I have repeatedly treated gonorrhœal cases, both acute and chronic, by its internal use with as good results as with ol. santal. flav., and without the characteristic odour of that oil appearing in the urine. In chronic cystitis I have found it useful where the patient refused to take the *oleosa* and *dumosa* oil.

It is also pleasant for inhalation in cases of catarrhal influenza, where the odour of eucalyptol or ordinary oils is objected to.

The oil is rather expensive and its employment is more that of a luxury, which necessarily limits its use.

Allied to the oil of *E. citriodora* are several scented oils, which although not in use commercially or medicinally, are of interest as showing how the absence of eucalyptol does not impair the antiseptic properties of the oil. Through the kindness of Mr. Thomas Cooke of the Research Department, Imperial Institute, South Kensington, I am able to show you samples of the following oils:—

E. Planchoniana (F. v. Mueller), of limited occurrence, found in the north of New South Wales and South Queensland. The odour of the oil is peculiar—allied to "citronella," but different from it.

E. Staigeriana (named after Mr. Staiger, of Brisbane, by Baron v. Mueller). It is the lemon-scented "ironbark" of Palmer river, Queensland. The leaves have the odour of scented verbena, and are obtained at Maytown. In addition to a lemon-scented ketone ($C_{10}H_{16}O_2$), it contains a considerable quantity of terpene. The oil has a specific gravity of 0·880, and boils between 190° and 230° C.

E. Baileyana (F. v. Mueller) named after Fred. Manson Bailey, F.L.S., colonial botanist, Queensland. A stringybark tree of northern New South Wales and South Queensland. It yields a melissa-like scented oil, strongly resinified, with a specific gravity of 0·940, and boils between 160° and 185° C. It contains some eucalyptol ($C_{10}H_{18}O_2$).

E. dealbata (A. Cunningham). It is found in dry situations in Queensland and New South Wales. The oil is believed by some to possess the finest odour of all the eucalypts. It

[1] This is a variety of the "spotted gum" of New South Wales and Victoria. The oil has a specific gravity of 0·905, and boils at 209° to 220° C.

contains a ketone like *E. citriodora*, and a body, probably an alcohol, with an odour resembling scented geranium.

Another oil I am able to show you is that derived from *E. hæmostoma* (Smith). It is midway between ordinary and the scented oils, and is produced commercially. It is one of the white gum-trees, is a common species, and is found in Victoria, North New South Wales, and Queensland. The oil possesses a pleasant odour, described by Dr. Bancroft as intermediate between oil of geranium and peppermint. Messrs. Schimmel & Co., Leipzig, liken its odour to that of cummin oil. Mr. Maiden,[1] of Melbourne, says, "it is an oil which is quite *per se*, it is on the border-land between scented and ordinary eucalyptus oil." It has a specific gravity of 0·890, and boils between 170° and 250° C. It contains terpene, cymol, and menthon.

Important Chemical Constituents of Eucalyptus Oils.

Eucalyptol.—With regard to this constituent it is found that, if present at all in the oil, it will come over in the fraction of the oil distilling at 170° C., reaching its greatest at 175° C., and gradually diminishing till the temperature reaches 180° C. Its specific gravity, boiling point, melting point, and solidifying point, polarisation, solubility, &c., were investigated by the late Mr. Robert H. Davies, F.I.C., F.C.S., and Mr. Thomas H. Pearmain (see Pharmaceutical Conference, Edinburgh meeting, 25th August, 1892). This is the most important contribution on the investigation of eucalyptol yet published.

Melting point of the crystals, . .	0° to − ·5° C.
Solidifying point of the liquid, . .	1° to 0° C.
Specific gravity at 15·5° C., . .	·9275
Boiling point at normal T. and P., .	174·5° C.
Polarisation, using a column of 220 m.m., uncorrected, ...	= —107.

They further established eucalyptol to be identical with cineol (specific gravity, ·927; see *Watt's Dictionary of Chemistry*, vol. ii, second edition, p. 526). The eucalyptol shown here is made by Faulding's process (patented 1894). In consists in adding strong syrupy phosphoric acid to eucalyptus oil, when phosphate of eucalyptol is thrown down; this is decomposed in contact with water, and eucalyptol is set free. It is then collected in a perfectly pure state, and has a constant specific

[1] *Pharmaceutical Journal of Australasia*, Melbourne (December, 1889).

gravity, boiling point, melting point, polarisation, and no odour of aldehydes. The solution contains 98 per cent of pure eucalyptol.[1]

Phellandren.[2]—This substance is not prepared in a free state and is not yet manufactured except for investigation purposes. It is very difficult to obtain; even Messrs. Schimmel & Co., of Leipzig, wrote saying that they would require a little time to prepare the quantity I now possess. If present in oils of eucalyptus it comes over in the fractions with the lowest boiling points. It is very soluble in rectified spirits (2 to 1). It has a strong mint-like odour. The late Mr. Robert H. Davies and Pearmain give a test for its presence in oils like *E. amygdalina*—"When sodium nitrite is added to a solution of oil of eucalyptus in glacial acetic acid, a solid nitrite is formed if phellandren is present."[3] Turns polarised light to the left (levo-rotary).

Terpene is a constituent of many of the oils, especially *E. globulus;* as 60 per cent in the form of "pineine," which is dextro-rotary. Also in the "mallee oils," as *E. oleosa, E. dumosa, E. uncinata, E. incrassata, E. cneorifolia, E. pyriformis, E. resinifera, E. hæmostoma, E. Baileyana, E. rostrata, E. odorata, E. Staigeriana.*

Ketones ($C_{10}H_{16}O_2$), "citral" or "citronellon," are found principally in the scented oils like *E. citriodora, E. Baileyana E. dealbata, E. Planchoniana, E. populifolia* or "Bimbil box;" resembles "cajuput" more than any other eucalyptus oil.

Aldehydes.—Mint-like in *E. amygdalina* as phellandren; "cummin"-like in *E. cneorifolia* as "cumminic" aldehyde; amyl-like or verbena-like in *E. citriodora,* probably as an alcohol; geranium-like in *E. dealbata*, probably as an alcohol; lemon-like in *E. Staigeriana,* probably as an alcohol.

Acids and Alcohols.—The following have been obtained from *E. globulus* oil, coming over at the lowest boiling point:—Butyric, valeric, and caproic aldehydes, and amylic and ethylic alcohols,[4] and a small quantity of tannin.

The following species have been tested for their oils, which are not yet produced in sufficient quantity to give them any commercial importance:—

[1] Eucalyptol is contained principally in *E. globulus, E. odorata, E. cneorifolia, E. oleosa, E. dumosa,* and other "mallees;" also in some scented oils, like *E. Baileyana, E. microcorys, E. hæmostoma.*

[2] *E. amygdalina* is the only commercial oil containing it.

[3] See *Pharmaceutical Journal*, vol. xxii, p. 235; see also *Pharmaceutical Journal*, vol. xxiii, p. 205.

[4] See *Pharmaceutical Journal*, 23rd December, 1893; Bouchardal and Oliviero in *Bulletin de la Soc. Chemi. de Paris*, tome ix, p. 429.

E. viminalis (syn. "the manna gum tree"). The oil is yellowish-green, with a disagreeable odour. It boils between 167° and 178° C.; rich in aldehydes; specific gravity, 0·942.

E. corymbosa (syn. "blood wood tree"). The oil boils at 174° to 199° C.; specific gravity, 0·880.

E. leucoxylon (*sideroxylon*) (syn. "Victorian ironbark tree," also called "South Australian white gum tree"). Yields a large percentage of oil from the fresh foliage, equal to 1·060 per cent (Bosisto).

E. longifolia (syn. "woolly butt"). The oil has a strong camphoraceous odour; boils between 194° and 215° C.; specific gravity, 0·942.

E. obliqua (syn. "Tasmanian and Victorian stringybark" or "messmate stringybark tree"). The oil is of a reddish-yellow colour, with mild eucalyptic odour; boils between 171° and 195° C.; specific gravity, 0·899. The oil distilled from the fresh foliage equals 0·500 per cent (Bosisto).

E. rostrata (syn. "red gum tree"). This species is the chief source of the gummi eucalypti (B.P.), a ruby-red coloured exudation, intensely astringent to mucous membranes. Solubility, 80 to 90 per cent in cold water. The oil, pale green, with an aromatic odour, resembles that of *E. odorata* both in smell and taste. Specific gravity, 0·918; boils between 131° and 181° C. Yields oil from the fresh foliage equal to 0·06 per cent (Raveret-Wattel).

E. tereticornis (syn. "flooded gum tree"), the "red gum" of Gippsland.

E. goniocalyx (syn. "Victorian spotted gum tree"). Yields oil equal to 0·914 per cent of the fresh foliage (Bosisto). It boils between 152° and 175° C.; has a very penetrating odour and pungent taste.

V.—CARD SPECIMENS.

A. By Dr. T. K. Monro.

1. A dura mater (obtained at the Victoria Infirmary), one half of which is lined by a well-developed adventitious membrane. This condition is very rarely met with in general hospitals.

2. Part of a skull damaged by a sarcoma which originated in the upper jaw on the left side, penetrated the base of the cranium in the middle fossa, and indented without actually invading the under surface of the temporal lobe. Patient was a man of 40, who died after a few months from exhaustion,

which was attributable chiefly to hæmorrhage from the tumour.

B. By Dr. W. K. Hunter.

Microscopical demonstration of blood from cases of beri-beri showing bacilli with cultures from them.

Meeting XVI. — 17th April, 1896.

Dr. David Newman *in the Chair.*

I.—CANCER OF THE PYLORUS.

By Dr. Samson Gemmell.

Dr. R. M. Buchanan showed for Dr. Samson Gemmell a fresh specimen of cancer of the pylorus.

The patient, a male, aged 51 years, suffered from symptoms of dyspepsia, with sour eructations and flatulence. Two years ago he began to vomit, and vomiting persisted, in spite of treatment, up till death. The abdomen was distended and prevented the discovery of any tumour, but the symptoms pointed distinctly to pyloric obstruction. The *post-mortem* examination revealed a cancer of the pylorus which reduced the calibre of the opening to the size of the little finger. The peritoneum was studded with miliary points of new growth, and the prevertebral, portal, mediastinal, and cervical glands were enlarged and caseous. The liver, pancreas, and spleen showed secondary growths on their surfaces, but their substance was free from any growth.

II.—AN ACCOUNT OF EIGHT CONSECUTIVE CASES OF THYROTOMY (CRICO-THYROTOMY), WITH ONE DEATH, FOR REMOVAL OF INTRA-LARYNGEAL GROWTHS.

By Dr. Walker Downie.

The following eight cases illustrate some of the many intra-laryngeal diseases which can be treated more directly, more safely, and more successfully by the operation about to be described than by any other means.

The operative procedure adopted is usually referred to as thyrotomy. In each case, however, not only was the thyroid cartilage divided, but the cricoid cartilage and the crico-thyroid membrane were similarly dealt with, the interior of the larynx

being thereby fully exposed to view. Laryngotomy, in the fullest sense of the word, is the term which would be most applicable to this operation; but, rather peculiarly, this latter term is by authorities limited to incision of the crico-thyroid membrane; and so, to prevent confusion, I have entitled them as cases of thyrotomy or crico-thyrotomy.

As publication of the full notes of these cases would both weary the reader and occupy too much space, I have arranged the main points in each case in tabular form, that these particulars may be more readily and clearly followed and compared.

At the International Medical Congress of 1881 it was agreed by those in conclave that "every benign laryngeal tumour ought, if possible, to be removed *per vias naturales*, and only if an experienced laryngologist had established the inexpediency of this method should the extra-laryngeal operation be adopted." Laryngologists agree with this in the main; but in dealing with papillomata, which are included in the category of benign growths—although the persistence they exhibit in recurring might occasionally be termed "malignant," as in Case 7—it is quite impossible to deal with them satisfactorily, which means successfully, *per vias naturales* in the great majority of cases, and the attempts to do so are hurtful in many cases. The growths are multiple; the area affected is usually widespread; and recurrence is the rule.

In the performance of thyrotomy it is recommended that the upper extremity of the projecting angle of the thyroid cartilage (pomum Adami) should be left intact to ensure the accurate replacement of the parts, including accurate apposition of the vocal cords, after operation. I prefer, however, and practise division of the cartilage throughout its length, as the interior is thus more easily explored, and growths from the ventricular bands and in the higher reaches of the larynx generally are more readily destroyed or removed. At the same time I resort to the following method to ensure accurate replacement of the parts after operation:—In dividing the thyroid cartilage the incision is made from below upwards in the middle line, but in place of continuing it in the middle line throughout, I cut obliquely into one ala near the upper border and again return to the middle line at the notch, so that the parts readily dovetail when brought together after the operation. By this means extirpation of the growths is rendered both more certain and less difficult, and the risk of subsequent aphonia from malposition of the vocal cords is avoided. This is illustrated by Cases 2 and 8, where both cricoid and thyroid cartilages were completely divided, and

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PARTICULARS, IN TABULAR FORM, OF EIGHT CASES OF THYROTOMY (CRICO-THYROTOMY), WITH ONE DEATH, PERFORMED BY DR. WALKER DOWNIE FOR REMOVAL OF INTRA-LARYNGEAL GROWTHS, INNOCENT AND MALIGNANT, AND BROUGHT BEFORE THE GLASGOW MEDICO-CHIRURGICAL SOCIETY, ON FRIDAY, 17TH APRIL, 1896.

Case.	Sex.	Age.	Occupation.	History.	Complaint.	Condition Revealed by Laryngoscopic Examination.	Date of Operation.	Operative Procedure.	Nature of Tissue Removed.	Result.	Remarks.
1	M.	53	Quay labourer.	Had small-pox when a young man, since which his voice has been husky. During past fourteen months voice had assumed character of a hoarse whisper. Severe attacks of dyspnœa during past two months, most marked during exertion. Passed into hospital as urgent case on account of extreme dyspnœa.	Hoarseness; loss of voice; variable dyspnœa, sometimes extreme	Larynx deeply injected. Large greyish mass, springing apparently from greater part of right vocal cord, dipping through the glottis, and disappearing beneath the left vocal cord, and occupying greater part of lumen of larynx.	Tracheotomy, 1st March, 1890. Thyrotomy, 11th March. (Major operation postponed on account of extreme exhaustion of patient, and unsatisfactory state of his lungs.)	Incision for tracheotomy extended upwards through cricoid and thyroid cartilages, fully exposing interior of larynx and tumour. Tumour, rounded, firm, and greyish-white, about size of an average marble, springing from the right vocal cord, with the greater part of which it was closely connected, and from the right subglottic region, its area of attachment being about size of a sixpenny piece. It was grasped with forceps, and clipped away with scissors; raw surface subsequently cauterised. Cartilages replaced, and tracheotomy tube reintroduced. Tube removed on second day.	Fibroma. Microscopically, a series of bundles of diverging and interlacing white fibres.	Died of septic pneumonia on evening of fourth day after operation.	Tracheotomy was performed to relieve urgent dyspnœa; and, though his temperature was pyretic on admission and after preliminary operation, it was thought advisable to complete operation rather than continue to wear tracheal tube until his general state might be improved.
2	M.	10	Scholar.	Had rough voice, with frequent attacks of husky, "croupy" cough for seventeen months, due, his mother thought, to reading aloud at school. Latterly has had increasing dyspnœa, especially on exertion. As example, in walking from infirmary gate, to which he came by car, to the dispensary, a distance of about 120 yards, he had to stop by the way several times, hold on by the iron rail, and wait till he had recovered his breath.	Huskiness and shortness of breath on exertion.	Upper surface of larynx hid by warty growths. They presented three distinct clumps—one sprang from the epiglottis, and projected backwards between the vocal cords; the second and largest mass occupied the greater part of the right vocal cord; and the third sprang from the left vocal cord, near its posterior attachment.	Tracheotomy, low operation, 3rd October, 1890. Thyrotomy, 8th October.	Cricoid and thyroid cartilages divided in middle line, with exception of upper border of latter, where a small portion was left intact to ensure accurate replacement of parts. When opened, interior of larynx seen to be studded with numerous warty growths, some springing from the vocal cords, others from subglottic region, and many from wall of trachea. These were removed with curved scissors, and the parts from which they sprang seared with galvano-cautery. Cartilages and skin brought together with sutures, and tracheal tube replaced. Tube removed on third day, and patient dismissed on 8th November.	Typical papilloma.	Larynx remained perfectly free for twelve months, when a small wart appeared on laryngeal aspect of epiglottis. Destroyed with cautery. Now (17th April, 1896) perfectly well, voice clear and strong. (Patient shown at meeting.)	Recurrence, which is the rule in papillomata, occurred here long after first operation, and the new growth was easily removed, with satisfactory result, and with no further recurrence during past five years.
3	M.	42	Joiner.	Had always enjoyed good health. For two months had been getting hoarse, latterly speaking in husky whisper, and with considerable difficulty. Within past few weeks had dyspnœa occasionally. No history of syphilis—married—no family.	Slight cough; hoarseness and shortness of breath on exertion. Later, urgent dyspnœa.	*March, 1891.*—Fauces, pharynx, and larynx deeply injected. Ventricular bands considerably inflamed and swollen, and each ulcerated along its free margin. Portions of both vocal cords destroyed by ulceration. *May, 1891.*—Ulcers healed; ventricular bands had become united posteriorly, and cicatrisation had been followed by contraction, which had resulted in great reduction in size of the glottis.	Tracheotomy, 4th June, 1891. Continued to wear a Foulis' tube, while attempts to dilate glottis opening with O'Dwyer's and Störck's tubes were made. Thyrotomy, 7th December.	Incision for tracheotomy extended upwards, and cricoid and thyroid cartilages divided completely in middle line. When opened, subglottic region of larynx seen to be occupied by masses of polypoid tissue. This was removed by scissors; then left half of the diaphragm formed by the united ventricular bands was excised. When bleeding checked, parts were replaced, and a Störck's combined tracheotomy tube and laryngeal dilator was placed in position and worn for months.	Œdematous granulation tissue from subglottic region. Muscular and cicatricial tissue representing portions of ventricular band.	Was able to speak, though huskily, and to breathe with comfort.	Though history given of himself and family rather led one away from suspicions of syphilis, yet the appearances and course of the local conditions were to my mind typical of such, and possibly occurred here as a late manifestation of inherited syphilis. He died at end of twelve months from starvation consequent on contraction of the gullet.
4	M.	50	Engine-fitter.	Has always been remarkably healthy. Became hoarse six months before seeking advice; was content to apply simple remedies during that time, as considered it the result of an ordinary cold.	Hoarseness unaccompanied by pain.	Lining membrane of larynx deeply injected; both ventricular bands unusually large and full, interfering with full view of cords. Both vocal cords deeply injected; from left cord a tumour, about three-eighths of an inch in long axis, projected. In outline it resembled a horse-bean, but was somewhat smaller than an average one, and, unlike a papilloma, it appeared as part and parcel of the cord from which it sprang.	Tracheotomy, 13th September, 1892. Thyrotomy, 20th September.	Cricoid and thyroid cartilages completely divided in middle line. Interior of larynx illuminated with a Trouvé lamp. Tumour, though flat, and somewhat like a bean as viewed from above, was seen to extend beneath and affect a large part of the under surface of the left vocal cord. With scissors clipped away whole of left vocal cord with part of subglottic tissue from which tumour sprang, laying bare the cartilage at parts in attempt to completely remove affected tissues. Applied galvano-cautery to raw surface, and packed larynx with iodoform gauze. Withdrew packing next day, inspected interior of larynx, then brought edges of cartilages, &c., together. Removed tube on fourth day. Dismissed hospital, 10th Oct.	Typical epithelioma.	General health at once improved. Voice now (17th April, 1896) rough, but good and strong; and he has been at his employment regularly since leaving hospital 3½ years ago. (Case published in *Brit. Med. Jour.*, vol. i, 1894. Patient shown at meeting.)	*Two points:* (*a*) Size of growth and extent of surfaces involved greater than appeared when growth viewed by laryngeal mirror. This is almost always the case in malignant growths connected with the vocal cords. (*b*) In phonating, the right vocal cord now crosses over, rises up to meet the free edge of the left ventricular band, which latter has here, as it does in cases where a vocal cord has been destroyed by disease, assumed the *rôle* of a true vocal cord.
5	F.	6	Scholar.	Child has always been delicate; suffered much from inflamed eyes (*ophthalmia tarsi*); has had rough voice all her life, and been subject to "croup;" latterly has had increasing difficulty in breathing while asleep.	Huskiness; croupy cough; dyspnœa for weeks during the day, aggravated at night.	Considerable fulness of both ventricular bands; parts at lower level, vocal cords, &c., obscured.	Tracheotomy, 1st December, 1892. Thyrotomy, 4th December.	Incision for tracheotomy extended upwards, cricoid and thyroid cartilages being completely divided in middle line. Great hypertrophy of both ventricular bands brought into view. Portions of those bodies clipped away, cartilages replaced, and Foulis' tube inserted. Tube removed at end of fourth day.	Hypertrophied and œdematous mucous and submucous tissue	Free respiration restored, and voice greatly improved.	An extreme example of the laryngeal conditions which give rise to recurring "croupy cough."
6	M.	4	—	Has had rough hoarse cry, with deep croupy cough, all his life. Latterly, aphonia and dyspnœa.	Aphonia; shortness of breath, which becomes "crowing" when he sleeps.	Numerous warty growths within the larynx. Examined with difficulty.	Tracheotomy, 4th May, 1893. Thyrotomy, 7th May.	Incision for tracheotomy extended upwards, cricoid and thyroid cartilages being completely divided in middle line. Numerous papillomata springing from both vocal cords and interior of larynx generally clipped away with scissors. Larynx packed with iodoform gauze. Examined next day, cauterised raw surfaces, and touched suspicious points with electric cautery; brought cartilages together, and reintroduced Foulis' tube. Tube withdrawn on third day. Operation repeated in three months, same procedure being adopted.	Papilloma.	Recurrence within six weeks of first operation. No recurrence since second operation.	Illustrates tendency of papilloma to recurrence when met with in very early life.
7	M.	1½	—	History of difficulty of breathing since he was 6 months old. He had suddenly become worse, and on admission to Royal Hospital for Sick Children his trachea was opened without delay.	Dyspnœa.	First examined by Dr. Downie, 20th Jan., 1895, when larynx found completely blocked with papillomatous masses standing up, having cauliflower-like surfaces, and hiding all structures beneath the level of the arytenoids.	Thyrotomy, 25th January, 1895. Repeated, 8th February. Do., 21st May. Do., 6th September. Do., 27th November. Do., 2nd December.	Interior of larynx fully exposed on each occasion by complete division of cricoid and thyroid cartilages. At first operation numerous unusually large papillomata (shown at meeting) sprang from upper surface and free border of both ventricular bands and from vocal cords; there were also innumerable small elevations, here and there distinctly warty in character, over lining membrane of larynx and trachea down to the level of the third ring. These were carefully clipped away individually with scissors, or excised, where small and closely packed, with sharp curette. Surface seared with thermo-cautery after first operation; at subsequent operations, chromic acid and trichloracetic acid were employed as caustic agents. After second operation a rubber tube was enclosed within trachea and larynx, and kept in position for eight days, to exert pressure over lining membrane, and to permit of ordinary tracheotomy tube, which had produced ulceration of trachea, being dispensed with.	Typical papilloma.	After each operation had a season of relief. Last operation, 2nd Dec., 1895. Tube withdrawn 16th Dec., and was without it till 9th April. During that interval (four months) his breathing was free; he spoke usually in whispers, though on exertion he had voice which was hoarse and croaky. Since end of March has become languid and readily tired though the picture of health. On evening of 9th April, while being bathed, he suddenly fell down, as if from cardiac weakness, lips white, not livid, and not preceded by dyspnœa. Foulis' tube inserted, and child laid flat on nurse's knee. Subsequent examination shows recurrence of papillomata. (Patient shown at meeting.)	The age of the patient; the size of many of the growths removed; the extent of surfaces affected, and the rapidity and frequency of recurrence of the growths, make the case a remarkable one.
8	M.	5	Scholar.	No history of sore throat or hoarseness till 25th July, 1895. Seen first by Dr. Duff two days later. Had croupy cough, worse at night; temperature, 100° F.; breathing quiet when at rest; aphonia with hoarse cough. Treated for laryngitis. Next night had paroxysm of dyspnœa, with crowing respiration, which gradually became less marked till morning of 29th, when it returned, and trachea was opened while he lay in a comatose state. No evidence of false membrane. On twelfth day, and after, the tube was occasionally withdrawn for a few hours, but dyspnœa supervened, and once, when tube was coughed out, he was almost dead by time doctor arrived and reintroduced it. On 27th September, two months after tracheotomy, was sent to Dr. Downie.	Inability to breathe without tracheal canula.	Larynx injected; ventricular bands somewhat swollen; no new growths visible.	Thyrotomy, 8th October, 1895.	Incision for tracheotomy extended upwards through cricoid and thyroid cartilages. On separating edges of wound, a small polypus was coughed upwards; found to be attached by long pedicle to tracheal wall about level of second ring. Snipped with scissors close to attachment; cartilages brought together with two deep silkworm sutures, and edges of skin with plaster; a Foulis' tube with opening on convexity introduced. External opening of tube corked for short time on 10th Oct.; cork kept in all day on 11th; and tube withdrawn on 16th, and patient allowed to run about ward. Dismissed 25th October, with wound healed.	Mucous polypus.	Dr. Duff, on 31st March, 1896, reports: "Since return home he has been perfectly well. Runs about in all weathers, and attends school. Voice now (August, 1896) clear and strong. (Patient shown at meeting.)	The extreme length of pedicle permitted very free movement of the new growth, giving rise to inflammation and spasm of larynx, which, on two occasions, nearly ended fatally.

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warty growths removed from the larynx, and where the voice is now perfectly clear.

In each case on the accompanying list, with the exception of No. 4, tracheotomy was performed, without much preparation, to relieve urgent dyspnœa, and not specially as a preliminary to thyrotomy. Nevertheless, I look upon a preliminary tracheotomy as a wise procedure, as it permits the patient to become accustomed to the use of the tube some days prior to the performance of the major operation.

In the performance of thyrotomy chloroform is administered through the tracheotomy tube, which is retained in position until the cartilages are exposed, and until bleeding, the result of cutting skin, &c., is checked. At this stage I withdraw the tube, then divide the cartilages from below upwards, and have the cut edges at once separated by retractors. By the rapid and careful use of small sponges or gauze mops no blood should gain access to the trachea; and such a method, while quite as successful in preventing blood entering the trachea, is much less troublesome than the retention of a Trendelenburg's or Hahn's tube in the trachea during the operation.

The interior of the larynx being fully exposed, the growths, as in the case of papillomata, are excised individually; and, after all have been removed, the larynx is packed with iodoform or cyanide gauze, the tracheotomy tube is reintroduced, and the edges of the divided structures brought together and held by strips of plaster. Next day the packing is removed, and the parts from which growths have been excised, as well as all suspicious points, are cauterised, the electric cautery being preferred for this purpose. The cut edges of the cartilages are then brought carefully together, fixed in position by one or more sutures, and the incision through the skin stitched. If all is well the tracheotomy tube may be removed on or after the second day.

The serious results which may follow intra-laryngeal ulceration due to syphilis is illustrated by Case 3, where thyrotomy was performed to remove cicatricial tissue causing stenosis.

When dealing with intrinsic laryngeal cancer it is, in my opinion, wrong to attempt its removal *per vias naturales*, as the disease is usually more extensive than appears to be the case when examined from above by the laryngoscope, and as it cannot by any means at our disposal be so completely eradicated as by thyrotomy. This latter operation, if resorted to at an early stage of the disease, holds out much hope of great amelioration, if not of cure, as is illustrated by Case 4.

[This patient with others was shown at the meeting.]

The operation in such cases, though fraught with certain difficulties, is, when performed with care, comparatively safe.

There is much less difficulty in exposing and exploring the interior of the larynx in children than in adults, in great measure on account of the elasticity of the various cartilages in the former.

Dr. Newman said that he had listened to Dr. Downie's remarks, and had examined the cases, with great interest, and congratulated Dr. Downie upon the results of his treatment.

The last case in the table, mucous polypus of the larynx, is very rarely met with, probably not more than a little over a dozen cases having been recorded. This circumstance is peculiar, seeing that mucous polypi are so frequently found in other parts of the air tract. The case of frequently recurring papilloma (Case 7) is also of considerable interest on account of the great difficulty experienced in curing it, and the extent to which the tumour had grown. It is not uncommon to observe the frequent recurrence of papilloma after operation, and this is especially so in young persons, in the same way as warts on the hands recur. Dr. Newman had seen several instances of papillomata where recurrence had taken place, and even the question of malignancy had been raised on that account. Indeed, he believed he had seen a case which might be described as malignant papilloma in a child of 11 years. The tumour presented all the histological characteristics of a simple papilloma. It had been removed by several operators at different times. Ultimately the cervical glands became involved, also the internal organs, and the growths in these presented the same characters as the original neoplasm. This case might raise the question—we have malignant adenomata, why not also malignant papillomata as distinguished from epitheliomata? It would be interesting to watch Dr. Downie's case with this consideration in view.

The case of epithelioma of the larynx operated upon in September, 1892, and still alive and well, is an important one, and illustrates the good results of early operative interference in such cases, a course which Dr. Newman has strongly advocated. He described a case of small intrinsic epithelioma of the larynx which he removed by thyrotomy in 1890, and the patient is now following his occupation, and the larynx is quite healthy in appearance, with the exception of the absence of one vocal cord. This loss is, however, compensated for by the false cords, so that the voice is good. He mentioned two other cases in which thyrotomy had been performed for

malignant disease more than eighteen months ago, and where the patients were both well.

He was not sure that Dr. Downie should include Cases 3 and 5 as examples of tumours in the strict sense of the term. As regards the adoption of thyrotomy for the cure of inflammatory induration and cicatrices, the question must be settled —Is it not possible to relieve the obstruction by other means? In the *Glasgow Medical Journal* of October, 1888, Dr. Newman described three cases of complete laryngeal stenosis treated successfully by tupelo-dilators, and pointed out the advantage of that mode of treatment over thyrotomy. The tendency in all such cases is to contraction of the cicatricial tissue, so that in many of these cases an artificial larynx is required for a considerable time. In four cases he kept in an artificial larynx for many months.

One or two remarks were made regarding malignant cases where the tumour is situated within the larynx. In such cases, when the tumour is detected early, thyrotomy has proved effective in many instances; but when the neoplasm has been allowed to spread, as is so often the condition in hospital cases, little hope can be held out. Patients who attend our hospitals pay little attention to their voices; hoarseness is to them of little significance; it is only when severe pain develops that they seek relief. Consequently malignant disease of the larynx is seldom seen in its early stage in the lower classes. It is different in private practice, although even there the cases are often not sent to the operator sufficiently early, from the circumstance that both patients and their medical attendants are under the erroneous impression that pain is a necessary symptom of cancer even in its early stage. In the early stage hoarseness may be, and generally is, the *only* symptom, and it is most important that the general practitioner should recognise this. A point in diagnosis was referred to. The two tumours which most closely resemble one another are the papillomata and the epitheliomata. The latter may be situated in any part of the larynx, while the former generally arise from the vocal cords and in the anterior portion of the larynx; they almost never grow from the posterior part or from the inter-arytenoid fold. Consequently growths in the latter position are naturally to be looked upon with suspicion.

As to the cases in which thyrotomy is suitable, Dr. Newman considered that only those in which the tumour was small and capable of being very completely removed should be interfered with. When the disease had advanced, even

laryngectomy was of little use; tracheotomy relieved the breathing, and in favourable cases often prolonged life considerably.

Dr. Downie thanked the meeting for the way they had received the communication. The operation was without much risk if carefully performed and hæmorrhage properly controlled. He did not approve even of Foulis's tube with the flange cut away, as it interfered with a proper view of the parts. As regards the protrusion of the cartilage, he thought this was due to irregularity of the surface of the cricoid, a direct result of our method of performing tracheotomy whereby a round tube was forced through a linear incision in the trachea, and the lips of the wound were either inverted or everted, and were not correctly approximated in healing. Tracheotomy on the veterinary plan of a circular opening would obviate this. The better results of thryotomy as against extirpation are due to earlier diagnosis. When immunity extends over three years after operation for malignant disease, a patient may be said to be cured.

III.—TWO CASES ILLUSTRATING THE VALUE OF SKIN GRAFTING AND TRANSPLANTATION OF SKIN.

By Dr. J. H. Teacher.

The two following cases together illustrate pretty well two of the methods of healing extensive wounds by transplanting to them portions of skin or epidermis from other parts of the body—viz., (1) transplantation of pieces of skin including the whole thickness of the cutis vera; and (2) what was originally called skin grafting, really epithelium grafting—*i.e.*, planting on the wound small pieces of the epidermis with a view to getting an epithelial covering for a granulation tissue surface.

The history, as received from Dr. Frank Gairdner, is as follows:—

Case I.—About eight months ago Dr. Hector Cameron removed from the upper part of the thigh of a middle aged man a large area of skin studded with sarcomatous nodules, and at the same time a long strip of skin was dissected up from the front of the other thigh, all traces of fat scraped off, cut into eight or nine pieces, and planted on the raw surface after hæmorrhage had been arrested by pressure. A few stitches drew the edges of part of the wound together, and the grafts covered the rest—a rounded area about 7 in. in diameter. The wound in the left thigh was sewn up. Healing proceeded

without interruption, the grafts remained of a pinkish-white colour round their edges, but in the centres they became quite red, as if the granulations had eaten through, as Dr. Gairdner described it. In a short time, however, the epidermis again became evident, and in seven weeks patient was dismissed, with all but a few points where the grafts met, covered with skin. In nine weeks the wound was completely healed.

The present condition is shown in the photograph taken about three weeks ago, and patient is here himself. The wound is completely covered with good strong skin. The shape of the grafts is marked out by cicatrices between their edges, and the centres of several of the grafts where the surface had become red also present a cicatricial appearance; the rest is strong elastic skin like the normal skin, but not quite so thick and opaque nor quite so supple, its base being cicatricial fibrous tissue. On one or two of them hairs are visible. Patient up till recently wore a bandage round it, but it has never given him any trouble nor shown any tendency to break down. There has been no recurrence of the tumour.

Case II.—The patient, an apprentice turner, æt. 17, was brought up to the Western Infirmary, to the wards of Professor George Buchanan, on the 14th of August, 1894, his left arm having been lacerated by getting drawn between the cog-wheels of a planing machine. The skin and subcutaneous tissues were torn clean off the back of the upper arm from the level of the insertion of the deltoid down almost to the elbow, and round about half of the circumference of the limb, leaving a wound about 5 in. long by 5 in. wide, the floor of which consisted of the deep fascia with shreds of adipose tissue scattered over it. Also an area about 3 in. by 2 in. of the fore-arm just below the elbow was deeply lacerated, part of the skin being torn away, part hanging in ribbons. The skin between the wounds was torn and bruised. The deep fascia was intact. There had been very little bleeding, and he suffered very little pain.

All loose bits of fat and detached skin were picked off, but as many of the hanging shreds of skin as possible were left on in the hope that they might survive and act like grafts, which many of them did. The wound kept aseptic, or at least in very good condition throughout.

Four days later it was evident that many of the shreds of skin were going to die, and on the seventh day from the accident, when the first photograph was taken, the sloughs were all distinct; several of them can be seen as very black patches round the upper and lower edges of the upper wound

and across the lower one. The wound was practically the same size as on admission. The granulations were beginning to cover its floor.

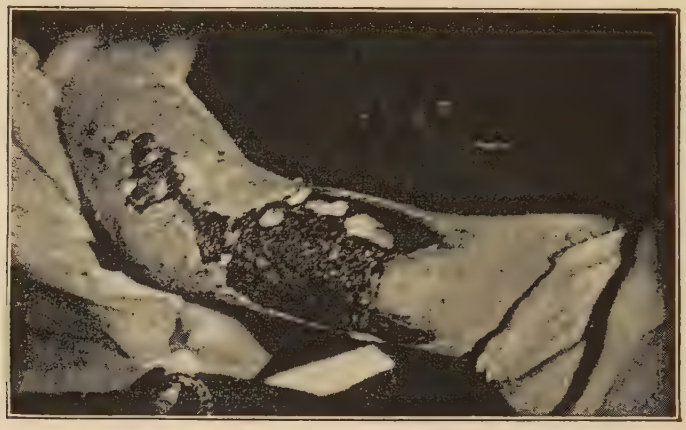

FIG. 1.

Transplants of whole skin and Thiersch's grafts fourteen days after operation.

FIG. 2.

Whole skin grafts, twenty-five days; epithelial grafts, nine days.

At the next dressing, on the fourteenth day, the second photograph was taken, and it shows the wound looking decidedly larger than at first; all the sloughs have separated, and a good number of the shreds of skin can be seen to have

survived. The whole floor of the wound was covered with granulations and nice and clean. Two days later, the sixteenth from the accident, under chloroform two strips of skin, about

Fig. 3.

Whole skin grafts, thirty-four days; epithelial grafts, eighteen days.

Fig. 4.

Condition twenty months after the accident.

5 in. long by about half an inch broad, were dissected up from the fore-arm (the sixth and seventh photographs show the place from which they were taken), a few shreds of fat scraped off, cut up each into five pieces, and placed on the

wound, which had previously been prepared for their reception by shaving the surface of the granulations and arresting the bleeding by pressure. There were eight pieces of whole skin about 1 in. by half an inch, which were placed on the upper wound. The other two, the tails of the strips which were thinner, resembling in thickness Thiersch's grafts—*i.e.*, epithelium and papillary layer of the true skin—were planted, one on the lower part of the upper wound about the middle, and the other on the lower wound. The places from which the skin was taken were sewn up.

In removing the dressing seven days later, all except three of the whole skin and the two Thiersch's grafts were unfortunately torn off, as they were sticking to the dressing. They were adhering very feebly, but had quite taken, as the places from which they came bled slightly and their under surfaces were red and vascular. They were replaced, but failed to take again. The third photograph (Fig. 1) shows the positions of the survivors—two of the large grafts, the white patches below them being a shred which survived and one of the Thiersch's grafts. The other large graft is to the inside of the arm, and the second Thiersch's graft is seen near the upper end of the lower wound. At this time, seven days after the operation, there was no sign of growth about the whole skin grafts, and there was a slight dark mark in the centre of the largest one as if part of it were going to slough; a thin scale which came off dry some time later was all that this came to, and the graft was none the worse. The thinner Thiersch's grafts had taken vigorously, and were already beginning to spread at the edges. They were quite white in the centre where there had been a certain amount of cutis vera. Growth was proceeding from the edges of the wound and the shreds of skin, though it had been greatly hindered by the sloughing.

The third photograph (Fig. 1), taken on the fourteenth day from the operation, shows the whole skin grafts just beginning to spread and a good deal of growth in from the edges and round the two thinner grafts. Two days later a number of epithelial grafts were applied.

The fourth photograph (Fig. 2), eleven days later, twenty-five days from the first and nine from the second operation, shows a tremendous advance from all points. The epithelial grafts were mostly invisible, though two or three of them can be made out in the photograph near the inner side of the wound. Six days later and fifteen from their application, several of them showed as separate patches, rather smaller

than threepenny pieces, dotted over the wound, but when the fifth photograph (Fig. 3) was taken on the eighteenth day the wound was spoilt for pictorial purposes, as they had nearly all coalesced, which shows the rate at which they were spreading. Four more small grafts were planted in the largest bare spaces.

The sixth photograph, five days later, thirty-nine from the original operation, and fifty-seven from the accident, shows the wound almost covered with skin and epidermis, and the seventh photograph shows it healed, seventy-four days from the accident. The whole skin, and the Thiersch's grafts looked nice and strong. The skin produced by the epithelial grafts looked thin and weak, and was dry and scaly. Patient was discharged with instructions to return at once if any breaking down occurred.

He was not seen again for about fifteen months; the eighth and ninth photographs were taken about three weeks ago, and he is here himself to show the result some twenty months after the accident. He has used the arm freely since about a fortnight after his discharge; it has remained sound, and movement is in no way interfered with, but it has never quite recovered its strength and is a good deal weaker than the other. It is interesting to note in the photographs how the arm wasted with disuse and how it has now recovered. The whole skin grafts, as in Dr. Cameron's case, have resulted in fine strong patches of skin resembling the normal skin, but a little thinner and somewhat transparent; the thinner (Thiersch's) grafts, including part of the cutis vera, have also given a very good skin, hardly so thick as that from the whole skin grafts. On the other hand, they took more readily and spread more rapidly. The third kind of grafts, the epithelial ones, spread very rapidly over a large surface, but the result is a very thin transparent cuticle over a red and fairly vascular base of cicatricial tissue, and it is rather dry, with a tendency to be scaly. The eighth photograph (Fig. 4) shows fairly well the difference between the product of the transplantation of the whole skin and that of the epithelial grafts.

Sensibility over the whole area of the scar is very fair, which is rather remarkable considering the depth of the wound. It is not only sensible of deep pressure, but also of light touches and painful impressions, though certainly to a less degree than the normal skin around it. There are hairs growing on all the large grafts, and, as mentioned before, on one or two in Dr. Cameron's case, which is not surprising, as they are epithelial structures and their roots often do not

project so far from the deep surface of the cutis vera as to be cut in dissecting up the strip and scraping off the fat. Also, the whole skin grafts all along remained white and thick, the tissues of the cutis vera evidently surviving as well as the epithelium.

As patient would not take a Turkish bath I cannot say whether there are any sweat glands in the thick grafts; probably histological examination would be required to settle this question in any case, but I should think it unlikely that there would be any, as they are so deeply situated that they could hardly escape being cut away, unless they have been regenerated from the ducts. The soft natural appearance of the whole skin grafts, contrasting with the dryness of the cuticle formed by the epithelial grafts, certainly suggests that some of the lubricating glands are present in the former.

There was a good deal of trouble with the large grafts used by Dr. Cameron, from curling up; with the smaller ones of the same thickness used in my case there was not much trouble from this cause, but they shrank to a most annoying extent as soon as they were cut. In conclusion, the cases seem to show that while the epithelial grafts take very readily and spread very rapidly over a large surface and give a very fair surface, whole skin or thick grafts, including part of the cutis vera, take readily enough, and give a covering much more like the normal skin and very much to be preferred to that obtained by the former proceeding.

Dr. Newman congratulated Dr. Teacher on his successful cases and on his photographic illustrations.

IV.—EPITHELIOMA OF THE ŒSOPHAGUS.

By Dr. Newman.

The patient was admitted to the Glasgow Royal Infirmary on 6th February, 1896, suffering from dysphagia, dyspnœa, and aphonia from paralysis of the left vocal cord.

In December, 1894, the patient was suddenly seized with a severe attack of vomiting, and at the same time suffered from pain in the epigastrium, which has continued more or less ever since. The first difficulty he experienced in swallowing was in April, 1895, when he found that he was not able to take solid food so well as formerly, and since then the dysphagia has steadily increased until admission, when he could only take very thin fluid diet. During the act of swallowing he had the

feeling as if the difficulty was caused by a constriction at the level of the upper end of the sternum. Pain also is felt in the back about the level of the sixth dorsal vertebra; on auscultation the point of obstruction is found to be at the level of the fourth dorsal vertebra, and the œsophageal bougie shows the obstruction to be 10½ in. from the teeth. Two months previous to admission the patient noticed that his voice was becoming hoarse, and at the same time he suffered from occasional attacks of dyspnœa on any exertion, but especially after ascending a stair.

Laryngoscopic Appearances.—The mucous membrane of the pharynx and larynx is hyperæmic, and both vocal cords are injected. The left vocal cord is fixed in the cadaveric position during inspiration and phonation, while the movements of the right cord are also impaired.

Physical examination of the chest shows in the interscapular space, and to the left of the spine at the level of the fourth dorsal vertebra, a distinct dull area of about 3 square inches. At this point it is evident that air is not entering the left lung so freely as the right. At the left base there is evidence of hypostatic congestion, but otherwise the lungs are normal. The cardiac sounds are pure but feeble, and sometimes irregular. The general condition of the patient is poor, but as swallowing is now almost impossible gastrostomy is demanded. While the patient was under the influence of chloroform an incision was made through the abdominal parietes an inch below and parallel to the left costal cartilages. The incision was an inch and a half long and extended outwards and downwards from the margin of the left rectus muscle; with some difficulty, on account of the complete collapse of the organ, the stomach was felt. About a couple of square inches of the stomach wall were dragged through the incision in the parietes. A circle of sutures, each including about a quarter of an inch of stomach wall, was passed through the serous and muscular coats. The radius of this circle was about one-third of an inch. Each suture overlapped its neighbours by about one-eighth of an inch, so that when they were all introduced they resembled in form the tyre of a wheel. After all the sutures had been inserted in the stomach wall the free ends were passed through subcutaneous tissue and skin and tied externally, so that when the operation was completed an area of stomach wall about the size of a shilling was exposed to view. Through the centre of this area two silver sutures were passed parallel to one another and about a quarter of an inch apart. This method of stitching, by which the peritoneum and muscular tissue were left free

and in full contact with the wall of the stomach, gave a broad base for adhesions and ensured the formation of a complete sphincter. Five days later, a small galvanic cautery was introduced into the stomach between the two silver loops, which were held apart, so as to make a little tension upon the intervening area of the stomach. Then a small gum-elastic catheter (No. 3) was passed into the stomach through the opening thus made, and fixed in position by means of adhesive plaster. The patient was now fed with milk, four ounces being given every four hours, in addition to the nutriment administered by the rectum. Every day larger tubes were inserted, so that a week later a piece of elastic tubing, the size of a No. 17 œsophageal bougie, was introduced, and beef-tea, milk, masticated porridge, and corn flour were poured into the stomach through a filler by the patient himself. After the food was so taken the tube was withdrawn, the patient remained in the recumbent posture, and held a small pad of gauze over the opening.

The wound healed rapidly, and the patient continued well until the 25th of March, 1896, when a considerable quantity of blood appeared in the urine, and a few days later blood escaped from the stomach through the opening in the parietes. On the 30th March he had several severe attacks of coughing, and in the evening he had a sudden copious hæmorrhage, and died about five minutes later.

The *post-mortem* examination demonstrated an epithelioma of the œsophagus behind the trachea, and closely bound to the upper part of the descending aorta, into which the ulcer had perforated. The opening into the aorta was the size of a No. 12 catheter, the edges thin and ragged. The heart and aorta were almost empty, but the stomach was found to be filled with clotted blood. Besides perforating the aorta the tumour was found to have eroded the bodies of the third and fourth dorsal vertebræ, and the left recurrent laryngeal nerve was found incorporated in the substance of the tumour.

Remarks.—Death from hæmorrhage is not very common in cases of epithelioma of the gullet. Perforation into the aorta is most common when the tumour is situated just below the bifurcation of the trachea; when the growth is situated above that point it is more apt to ulcerate into the trachea. I have had two cases illustrative of this—in one of which gastrostomy was performed. The first case was admitted into the Royal Infirmary in March, 1890, and the following is an epitome of it:—Epithelioma of the œsophagus at the level of the bifurca-

tion of the trachea; ulceration and rupture into the aorta; early symptoms, dyspnœa, dysphagia, unequal inspiration in lungs, dull area posteriorly; death from sudden perforation into the aorta. The second case was also a Royal Infirmary one, and was admitted in May, 1888. The epithelioma was situated at the level of the bifurcation of the trachea, causing very marked dysphagia, so great, indeed, that gastrostomy was performed. During the first twenty-four hours he gained strength, but on the second evening after the operation he noticed that when he swallowed fluids they immediately caused an attack of coughing, during which the food was expectorated. Acute bronchitis developed, and the patient died on the fourth day. The *post-mortem* examination showed an epithelioma of the œsophagus at the level of the bifurcation of the trachea, and firmly adherent to the aorta, to the trachea, to the bronchial tubes; and there was a rupture large enough to admit the little finger between gullet and the left bronchus.

In the statistics of 566 cases which I have collected,[1] the modes of death in epithelioma of the œsophagus otherwise than by starvation are illustrated. Of these, 15 only died from perforation into the heart or blood-vessels.

Regarding this particular case, it is important to remember that when an obstruction in swallowing is detected at the level of the bifurcation of the trachea, great care must be taken in the passage of the bougies. While I was Pathologist to the Royal Infirmary a case came under my observation where a very complete obstruction to swallowing was caused by an aneurysm of the aorta. In this case a physician, supposing the obstruction to be due to a tumour in the gullet, passed a bougie and perforated not only the œsophagus but the wall of the aorta. The hæmorrhage which resulted caused the patient to be sent to the Royal Infirmary, and she died shortly after admission. This case made a very strong impression on my mind, and, as a consequence, I have been most careful, when I have discovered an obstruction in the situation indicated, to avoid the passage of bougies, unless it is very evident that there is no aneurysm or ulceration of the œsophagus.

Opening the stomach in cases of stricture of the gullet was first suggested by Egebert in 1837, and recommended by Blondlot and Watson; but it was not until the year 1846 that Sidillot operated unsuccessfully for cancer of the œsophagus, and from that time till 1876, when Verneuil obtained the first success, the recorded cases constitute an unbroken series of failures. Since 1876, for cicatricial stricture alone, I find 48 cases of gastrostomy recorded, giving 25 recoveries and

[1] Newman, *Malignant Disease of the Throat and Nose*, 1892.

23 deaths within a month of the operation; and for malignant disease, 280 operations have been performed, with 126 recoveries and 154 deaths within a month of the operation. Taking all the cases together, the chief causes of death were—of those who expired within a month—exhaustion, 53 per cent; peritonitis, 21 per cent; pneumonia, 15 per cent; bronchitis, 5 per cent; other causes, 6 per cent. As regards the period of death in these cases, as far as I can ascertain:—

Under	24 hours,					19	per cent.
Over	24 hours	and under	48 hours,			15	„
„	48 hours	„	3 days,			9	„
„	3 days	„	1 week,			15	„
„	1 week	„	2 weeks,			17	„
„	2 weeks	„	3 weeks,			14	„
„	3 weeks	„	4 weeks,			11	„
						100	per cent.

Within the last few years gastrostomy has been more successful, probably because greater care has been bestowed upon details, and the operation has been resorted to at an earlier stage in the disease. For example, Knie has operated upon 13 cases with only 3 deaths, and Credé upon 26 cases with 4 deaths. It is not necessary to discuss statistics in detail or to give references, but I would like to mention the facts which have been impressed upon me in studying the subject. In the large majority of unsuccessful cases the operation was performed too late, and hence we find that a considerable number of the patients succumbed to shock within forty-eight hours, while a large percentage also died from exhaustion, inanition, or extension of the disease a few days after the operation. Within recent years comparatively few deaths have been caused by peritonitis, pneumonia, or septicæmia. The statistics which I have now produced give a very different result from those collected by Verneuil and published in 1879. He then showed that out of 30 cases in which gastrostomy had been performed for malignant disease, only 1 survived a month. On the other hand, I find that since 1884, out of 113 cases recorded, 80 have lived over thirty days. The two most successful cases recorded are those operated upon by Murphy and by Whitehead. One of these patients lived 403 days, while the other was alive at the end of the thirteenth month.

Three of my gastrostomies lived for a year or more. In one case the patient lived for exactly a year after the operation, in another for 423 days, and in a third for 540 days.

Meeting XVII.—1st May, 1896.

Dr. Walker Downie *in the Chair.*

I.—Spina Bifida in the Lumbo-Sacral Region.

By Dr. Dalziel.

The patient, a child, had been treated four times by Morton's method, and the tumour had become firm, but there was no control over the fæces and urine, the legs were paralysed, and there was an ulcer over each buttock. An operation was undertaken to liberate the strangled nerves from the cicatricial mass, and this was followed by great improvement, the ulcer healed up, and power was regained over the bladder and rectum.

II.—Vaginal versus Abdominal Surgery.

By Dr. Stirton.

During the last six years I have been considerably exercised in tracing the complications and watching the results on health from operations on the female organs of generation, where laparotomy had been performed as a means of access to these organs. The first case impressed me strongly. This patient came under my care about five or six months after an operation where the left Fallopian tube and ovary had been removed, and (presumably) the remaining part of the broad ligament gathered together into folds and tied with one cord.

When I saw this case for the first time, the patient complained of pains over all the lower part of the abdomen, painful and frequent micturition, excessively painful menstruation, difficult and painful defæcation. An examination *per vaginam* revealed the presence of a hardish tumour anterior to the left lateral fornix. Puzzled at the time, I merely prescribed some anodyne, and sent her home.

Two days subsequently I was called suddenly to see her. She now suffered extreme agony in the same region. An examination *per vaginam* showed that the tumour formerly felt had disappeared: it had burst into the cavity of the peritoneum. As she was in a state of collapse, I deferred action for a few hours in order that reaction might set in. She never rallied, and died twenty-four hours thereafter.

I availed myself of the permission to make a *post-mortem* examination. *Inter alia* I found the fundus uteri, as well as the base of the bladder, dragged to the left side. The left

ureter had a hernia above its entrance into the bladder, which might have burst at any moment, inasmuch as the convex part was translucent and very thin. The rectum was bent upon itself, the convexity being to the left. This accounts for the painful and difficult defæcation.

The second case was one on which oöphorectomy had been performed, including removal of the left Fallopian tube. On presenting herself to me about ten months after operation, she complained of horrible bearing-down pains, with a burning, throbbing sensation in the back of the vagina. An examination revealed a tense tumour in the pouch of Douglas, the contents of which my experience told me were fluid. Evacuation of these was followed by a long and tedious recovery. She is still in indifferent health.

Gentlemen, I could give details of other cases, but sufficient has been told to give you at least a faint conception of the *sequelæ* arising from such operations, where you cannot establish an adequate drain in the event of suppuration occurring after operation. I shall now enumerate several of these *sequelæ*.

1. Abdominal herniæ in the line of the cicatrix, happily now much rarer, owing to the manner of stitching, as well as to the wearing of a belt for at least a twelvemonth, but still occurring now and then notwithstanding.

These herniæ, curiously enough, are more common in lateral laparotomy than in median or central, and more troublesome to deal with in the way of rectification.

2. Secondary abscesses in dealing with pyosalpinx, abscesses in the broad ligaments, &c.

3. Unsatisfactory and frequently fatal results from dealing with hæmatoceles by means of laparotomy. These accumulations of blood, from whatever cause, are comparatively common in connection with pelvic disease.

4. The high rate of mortality following abdominal section in cases of extra-uterine pregnancy, and also in cases of pelvic abscess where the pus is not sterile.

5. The sometimes serious results in pregnancy and childbirth after such operations. I allude to the stretching of the abdominal walls, and the unyielding cicatrices, especially cicatrices resulting from incisions made on either side obliquely.

Lastly, permit me to advert to one or two bad social consequences, that have come under my notice, arising out of the operation of laparotomy.

Several years ago (how many I cannot now recall), a respectably dressed young man called on me in a state of great agitation concerning his wife, to whom he had been recently married.

He said he had discovered something on her stomach concerning which he demanded an explanation. This explanation had previously been given by his wife. This was a case of ovariotomy. The cicatrix in this case was, of course, inevitable. Although I explained to him fully the nature of the case, I could not disabuse his mind of the suspicion that there was something wrong morally on her part. A subsequent visit on the part of the wife corroborated this story. I can fancy the subsequent conditions of their married life.

I have met several cases where sexual intercourse was rendered well-nigh impossible, or at least so painful to the wife as really to amount to impracticability, from the relative displacements of the different parts involved in sexual intercourse. These cases arose from abdominal operations on the Fallopian tubes, especially where they were excised.

Let us now discuss operations on the generative organs and their appendages through the vagina, and, in the first place, let me state the class of cases which can be adequately treated through this passage.

1. Nearly all pelvic abscesses.

2. All pelvic hæmatoceles, which, as I have already stated, are of frequent occurrence.

3. Almost all cases of extra-uterine pregnancy in the first half of gestation; and, by the way, our knowledge of this horrible abnormality is advancing so rapidly that it will soon be reckoned opprobrious if any medical man overlooks in his practice any such cases at a comparatively early stage where surgical interference is so beneficial.

4. Ovaries prolapsed into the pouch of Douglas.

5. Very aggravated cases of retroversion of the uterus will, I believe, be often rectified by acting on this organ through an opening between it and the bladder, and subsequent stitching, &c.

There are other operations in contemplation, and in a few cases actually performed, through this same opening in front of the uterus; but, as the results are questionable, I shall not enumerate them until I have had actual experience myself.

6. Extirpation of the uterus in malignant disease of the cervix, or, at least, where the disease has not invaded the neighbouring organs—a matter still difficult of determination.

7. Enucleation of fibro-myomata through the os uteri, and, of course, through the vagina. I may read subsequently a paper on this subject, when I shall give details of several cases operated on.

I include under this head cases of tumours which have been extruded either partially or completely by the uterus through the os.

8. Catheterisation of the Fallopian tubes through the uterus in cases of pyo- and hydro-salpinx. One such case successfully treated by this method is enumerated in the reports elaborated by Dr. Edgar. I have, besides, operated successfully on other two similar cases.

As a preliminary to all such vaginal operations, the relationship of the bladder especially and of the rectum secondarily to these tumours, whether solid or fluid, must be fully ascertained. The great majority are behind the uterus and in front of the rectum. Almost all abscesses determine either towards the rectum or down into the fold of Douglas, and this on the principle of least resistance. The variable conditions of the bladder as to size, hardness, &c., prevent such collections, as a rule, determining forwards. Besides, gravity has to do in such determinations. It is fortunate that such is the case.

Abscesses or other collections, either in the tubes or in the broad ligaments, determine more laterally, at the same time downwards but still behind the bladder. Almost all large collections of blood, from whatever cause, determine backwards and downwards; and it is only with the larger collections that we have, as a rule, to deal surgically.

So far as my experience goes, all extra-uterine pregnancies determine sufficiently downwards to be accessible to surgical interference *per vaginam*.

In the case of those tumours determining laterally a careful diagnosis of the relationship of the bladder to the tumour must be made out by means of the uterine sound inserted into the bladder. The sound can be moved in all directions backwards; and, with a finger at the same time in the vagina, the point of the sound can be traced by this finger in every direction *quoad* the tumour. There is very often a sufficient space for the introduction of the trocar or tenotomy knife beyond the limits of the bladder. With one or perhaps two exceptions I have been able to operate in this region without requiring, through an opening in the anterior fornix, to separate the bladder and push it forwards.

In Ward 30 there is at present a case which puzzled us for a time. The bladder was right in front of and below a fluctuating tumour, while the uterus was behind it. It was impossible, without great risk to the bladder, to get access to it through the vagina. We performed laparotomy, and found a cystic ovary firmly adherent to both bladder and uterus as

well as laterally. After considerable hesitation we separated the tumour from all its connections, and tied the pedicle. She is likely to do well, although a considerable amount of plastic lymph has since been extruded, leaving a space which is rapidly being filled by granulations. I mention this case for the purpose of indicating the difficulties at times in the way of diagnosis of pelvic tumours.

[*Note.*—Shortly after this paper was read this patient was dismissed completely cured.]

Our methods of operating are simple enough. By means of a tenotomy knife (guarded or not as the case may be), if the space occupied by the part of the tumour bulging on the vagina is narrow, or by means of a curved trocar and cannula if the space is broader, we make an opening into the tumour at its lowest or most dependent part, and ascertain its contents. If fluid we immediately enlarge the opening by a dilator, thus tearing, and not cutting, a sufficiently large opening for the escape of the fluid of whatever nature. At first we do not wash out the contents, but merely allow them to drain slowly away for twenty-four hours, or longer as the case may be. Care is taken to prevent absorption of deleterious matter by stuffing the vagina with antiseptic materials, as iodoform gauze, or a large tampon besmeared with a mixture of iodoform, boric acid, and vaseline. This tampon must be sufficiently large to fill completely the top of the vagina. There is almost always a certain degree of excitement of the system produced, as indicated by a rise of temperature, &c. If this reaction is slight, and there is little or no vomiting, the next day we enlarge the opening, if necessary, in the way of tearing, and introduce a double cannula into the sac, and wash out its contents so far as we can at one sederunt. Thereafter we again stuff the vagina. This operation is repeated from time to time until all the contents are evacuated, and contraction of the sac ensues. A sound is introduced from time to time into the sac to ascertain the depth of the cavity. If this contracts rapidly, as it generally does, we desist from further action, but continue to wash out the vagina once or twice daily, stuffing the passage thereafter as formerly. The patient is generally retained until menstruation ensues, if this is probable or possible.

As regards the minor cases of pyosalpinx, where the stage of bulging on the vagina has not been reached I have not yet determined what is the best line of treatment.

To open the abdomen in such suspected cases (and the diagnosis does not approach certainty in almost any such

case) is an easy matter; but its propriety is questionable, as I have partially indicated. I am aware it is now frequently done; but the results, as partially revealed to me, are certainly not such as to make the operation in every case justifiable.

Allusions have already been made to catheterisation and subsequent dilatation of the Fallopian tubes, and thereafter washing out the contents. This method, when practicable, may yet take its place among the preferable operations for evacuating the contents of inflammatory action there. I much mistake if better and certainly safer results will not be obtained by it than by removal of the tubes and ovaries through the abdominal walls.

[Dr. Stirton submitted notes of cases which had been elaborated, at his request, by Dr. Edgar. Most of the patients were seen and examined by Dr. Edgar recently with the view of determining the remote results of the treatment.]

Dr. Sloan said he had listened with pleasure to this interesting paper. The Society had reason to be grateful to Dr. Stirton and Dr. Edgar for bringing the subject before the profession. Some time ago the abdominal operation was performed on the slightest excuse, but the ideas expressed in the paper showed a tendency to return to the vaginal operation.

Dr. Renton regretted that Dr. Stirton did not indicate the cases that could be treated more satisfactorily by the vaginal operation than by the abdominal. He thought acute abscesses must be dealt with by abdominal operation, or the results would not be very satisfactory. He was pleased to hear that eleven cases of extra-uterine pregnancy had been treated by vaginal operation. All cases of extra-uterine pregnancy and abscesses of the abdomen might be divided into two classes—(1) acute and (2) semi-acute. In cases of pyosalpinx accompanied by fever and blood-poisoning the abdominal operation must be performed, and the cavity washed, drained, and stuffed, and in extra-uterine pregnancy with hæmorrhage the same operation must be performed, and the clot and fœtus turned out. In malignant disease of the uterus, the vaginal operation is proper, and gives good results.

Dr. Rutherfurd said that in extra-uterine pregnancy with hæmorrhage the mere tapping of the results of a single hæmorrhage will not bring the affection to an end, and when exit is given and the contents are removed by maceration, and suppuration going on for months, a possibility referred to by

Dr. Stirton, the chance for the patient is not pleasant to contemplate. The treatment of parovarian cysts by tapping, even by the abdominal route, is not satisfactory, as the cyst is a pathological product, and apt to take on malignant action.

Dr. Stirton replied that he had tapped parovarian cysts, one six years ago and another seven years ago, and in both cases there had been no further symptoms. He had operated on the abdomen 230 times, but a regard for human life has taught him to consider how to save human life. In reply to Dr. Renton he said all cases were acute, and if a fluctuant mass were present in the abdomen he could push it to the vagina, and open at once. He thought it inhuman to perform laparotomy to complete the diagnosis.

III.—MYXŒDEMA BEFORE AND AFTER TREATMENT.

By Dr. T. K. Monro.

The patient from whom the photographs shown were taken was first seen by me at the Dispensary of the Royal Infirmary on 5th November, 1895. She was then aged 37, married, and the mother of nine children, of whom seven were alive and in good health, the first baby having died of croup and the eighth having survived only thirty-six hours. The ninth and last baby was born in August, 1894, and about a month or six weeks after the confinement, patient found that a considerable swelling was developing below each eye. Thereafter pains began in the front of both legs, and patient felt "done up," and was apt to lose her balance on turning round; indeed she once actually fell from losing her balance. Another of the very early symptoms was an alteration in the voice, which became thicker, deeper, and more masculine. She used to sing, but now became quite unable to do so. It became an effort even to speak. Speech became slow, and it was also observed that when she came into the consulting room at the Dispensary she walked very slowly. Patient attributed the slowness in both cases to lack of power. She early recognised that the tongue was getting thick, and the lips became changed in a similar manner. There was a slight pink hue over each cheek. The swelling below each eye could be, to a considerable extent, removed by firm pressure, the skin becoming wrinkled and hanging in a loose fold, and not immediately filling up again. There was some pain in the back, and also at times in the lower part of the chest. Patient was still nursing her infant, and had plenty of milk. In the early part of the illness the trunk became thicker, so that patient had to get a

new bodice made; but after the spring of 1895, her girth became less, so that the bodice got quite loose. Memory and the other intellectual faculties became greatly impaired. The symptoms in general were much aggravated in cold weather. The skin became dry, though she still perspired at times. Patient complained of a sense of "weakness" in the region of the thyroid gland, and latterly she had pain as of an "open wound" in the suprasternal fossa. The isthmus of the thyroid seemed to be present, but the lobes could not be made out. There were no distinct supraclavicular swellings. Patient stated that in the course of her illness it was found that if she shut her eyes she would fall backwards if not supported. This symptom was present when she came under observation, and has proved to be the most persistent of all her symptoms, though under treatment it has become much less marked. Patient would "dwell too much on a thing," as her husband told her, and she was apt to repeat over and over again remarks on any particular subject. Nothing remarkable was detected on examination of the heart, eye, or urine. The knee-jerks were preserved. Patient's previous health had been excellent, and the only cause she could think of for her ailment was her second last confinement. The pregnancy was unduly long; the child was very large and lived only thirty-six hours, and its head was not normal. People had remarked that she had not looked so well since then.

Patient was ordered to take one thyroid tabloid (equivalent to 5 grains of healthy gland) three times a day. She and her friends noticed an improvement in her condition two days after the treatment was begun, and the amelioration proceeded rapidly, so that in about three months she was nearly as well as ever. Shortly after treatment was begun, some of the hair fell out from the front of the head for a few weeks. Since the first two or three months of treatment, the tabloids have only been taken intermittently. Patient now enjoys complete freedom from pain and discomfort, can sing, speak, and walk as before, and attend to her household duties with pleasure. Indeed, as early as the latter part of March, the husband said that, apart from the swaying of her body when she stood with her eyes shut, his wife seemed to be as well as ever she was. In the first week of April, there was still a little swaying—principally backwards and forwards—when co-ordination was tested, but even in this respect improvement was taking place. Otherwise patient was very well, and even the slight inco-ordination was not a symptom that would appeal to her in practical life.

The two photographs, taken as they were at an interval of ninety-nine days (less than three months and a half), furnish a most striking contrast. There is practically no resemblance whatever between the features in the two cases.

Dr. Marr said he had treated a case of myxœdema at Barnhill by giving internally three tabloids of thyroid extract weekly, and slight gastritis was induced.

IV.—THE EARLY HISTORY OF EPIPHYSITIS AND ITS RESULTS.

By Dr. Rutherfurd.

Dr. Rutherfurd drew attention to two points in the history of epiphysitis, viz., the difficulty of obtaining a reliable account of the earlier stages of the affection, and a want of detail as regards the sequelæ. He also took notice of the interference with the growth of the long bones, and gave measurements from a case illustrative of this.

V.—TUMOUR DIAGNOSED WITH THE ASSISTANCE OF THE *X* RAYS.

By Dr. Rutherfurd.

In this case Dr. Rutherfurd had to deal with a tumour of the foot, and the diagnosis lay between chrondroma and exostosis. By use of the *x* rays the translucency, and therefore cartilaginous nature, of the tumour was demonstrated. Other interesting conditions, not visible externally, were also revealed.

Meeting XVIII.—8th May, 1896.

Dr. Dunn *in the Chair.*

I.—NOTE ON A CASE OF CONGENITAL MEMBRANOUS OCCLUSION OF THE LEFT NARIS IN A CHILD.

By Dr. Walker Downie.

The child when brought before the Society was 14 months old. The mother had been married somewhat less than two years, and the patient was the result of her first pregnancy. When brought to the Ear, Throat, and Nose Department of the Royal Hospital for Sick Children, the child was supposed to be suffering from "a cold in the nose." It had snoring

respirations, it appeared to have great difficulty in breathing when asleep, and on account of its inability to breathe through the nose it was unable to remain at the breast for more than a few seconds at a time.

At the first visit the nares were red, inflamed, and swollen around the anterior orifices, and there was copious secretion within the nares and over the upper lip.

Directions regarding local cleanliness were given, along with some simple form of ointment to allay irritation.

The swelling of the upper lip and anterior nares rapidly subsided, rendering a careful examination of the interior of the nose possible. The left naris was then found to be completely closed, at a distance of three-sixteenths of an inch from the external opening, by a thin firm membrane, the anterior surface of which was smooth and continuous with the lining membrane of the lower part of the naris.

No ulceration could be detected and there were no cicatrices to be seen; so, considering the age of the patient at which the condition was detected, as also the nature of the obstructing tissue, there could be no doubt that the diaphragm was present at the child's birth.

Dr. Downie ascribed the formation of the obstructing membrane to the result of an intra-uterine ulcerative lesion, in all probability syphilitic in nature; and this opinion was subsequently rendered more probable, if not actually confirmed, by a statement made at the meeting by Dr. John Paterson to the effect that he had had this child when a few weeks old under his care suffering from unmistakable symptoms of congenital syphilis.

Though occlusion of the posterior nares is not uncommon, membranous occlusion of the anterior nares is an extremely rare condition. To emphasise this fact Dr. Downie referred to the few reported cases, the more important authors quoted being Morell Mackenzie, who in his *Diseases of the Throat and Nose*, vol. ii, reports having seen one case where a firm membranous band covered with mucous membrane passed across the cavity of the right nasal fossa from the lower turbinated bone to the septum, but only incompletely obstructing the passage; Jarvis, in the *Annual of the Medical Sciences*, vol. iii, 1888, reports two cases, and states that he has only been able to find one other case in the literature of the subject. Ball (*Handbook of Diseases of the Nose*), Havilland Hall (*Diseases of the Nose and Throat*), and others simply remark on the rarity of membranous occlusion, but have no personal experience to record.

II.—CASE OF SPASTIC HEMIPLEGIA WITH MARKED CONTRACTURE FOLLOWING ENTERIC FEVER (PATIENT SHOWN).

By Dr. J. Lindsay Steven.

As probably constituting a rather unusual sequela of enteric fever, I think the case which I now bring before you is of some interest. Goodall and Washbourn[1] tell us that various mental affections may follow enteric fever, and Hilton Fagge[2] states that Nothnagel and others have recorded paraplegia as an occasional sequela, although it is uncertain whether the lesion was in the cord or the peripheral nerves.

In view, then, of the peculiarly spastic character of the hemiplegia in this patient, and of its definite association with a severe attack of enteric fever, as well as of its ultimate termination in insanity, I think the case worthy of record.

J. J., æt. 22, miner and soldier, admitted 11th April, 1896, to Ward 7, complaining of stiffness of left hand and pain over top of left foot since July, 1895.[3]

Patient enjoyed very good health all his life until last May, when he had, while out in India, an attack of enteric fever which confined him to bed for two months. About three weeks after recovering from this he began to experience difficulty in approximating the fingers of the left hand to one another. This difficulty increased, and was gradually augmented by a feeling of stiffness and difficulty in extending the fingers of this hand. Soon he found the fingers getting more or less immovably fixed in a position of flexion upon the hand, although the phalangeal joints remained in an extended state. Coincidently with this trouble he began to experience pain over the top of the left foot when walking, and this he feels still in the same circumstances. During the last week of the fever his right leg was very much swollen, but it got well again during his voyage home from India at the end of the year.

He joined the army in 1892. Previously he was a miner. Since coming home he has been discharged from the army on account of the condition of the hand.

He has never had venereal disease, he says. He smokes about 3 ozs. of tobacco per week. He takes his food well, and his bowels are, on the whole, regular. He has never had any breathlessness or cardiac palpitation. He complains of no

[1] *Manual of Infectious Diseases*, p. 309, H. K. Lewis, London, 1896.
[2] *Practice of Medicine*, vol. i, p. 149, J. & A. Churchill, London, 1891.
[3] Clinical report by Mr. Archd. Young, B.Sc., M.B., C.M.

tremor or tingling of arms or legs. He states that although he never had ague while in India, he has had several attacks since coming home.

He has two brothers and two sisters alive and well. One brother was suffocated at the age of 14. His mother is dead; cause unknown. His father is still alive.

Patient's only complaint of any consequence is as to the left hand and wrist. The condition of these is as follows:—

The fingers are flexed upon the palm of the hand more or less. They can passively and slightly, by voluntary effort, be extended within narrow limits. The thumb is turned outwards, and flexed at the inter-phalangeal joint (see Fig. 1). Forcible extension of the fingers is accompanied by considerable pain,

Fig. 1.
Showing usual state of hand. (*Photo. by Archd. Young, B.Sc., M.B.*)

but the thumb is less painful in this respect. The wrist-joint is fixed, evidently largely by muscular spasm, and not by definite ankylosis. Movement of flexing the fore-arm on the arm is perfectly easily accomplished, but it is accompanied by considerable fine tremor of the whole arm. On attempting to raise the left arm above the head it becomes evident that there is little movement at the shoulder-joint. Most of the movement is accomplished by moving the arm and shoulder *en masse*, and, as a result, the range is much more limited than on the other side. There is no definite wasting of any of the arm muscles. The position of the thumb in relation to the other fingers is further noted. It is turned round in such a way that it rests upon the radial aspect of the first phalanx of the forefinger. As regards the foot, there is noted a spastic

Fig. 2.

Showing condition of arm and leg. (*Photo. by Archd. Young, B.Sc., M.B.*)

condition evidently involving the extensors, so that the toes are all drawn well up upon the dorsum of the foot, the first phalanx in each case being drawn far back upon the metatarsal bone. The extensor tendons stand out like cords. Despite this, movement of the ankle-joint is fairly free, although rather jerky. The power of the muscles of the thigh, as tested by making and resisting movements of flexion and extension at the knee, is fairly good in both lower extremities, and no appreciable difference is made out between the two sides.

Sensation is tested in both upper and lower extremities, and found to be normal. The reflexes (tendon) in the left upper extremity are abolished; in the right, normal. The superficial abdominal and cremasteric reflexes on the right side are easily elicited; the former can be faintly brought out on the left side, but the latter on the left side cannot be elicited. The knee reflex is distinctly exaggerated on the left side, and ankle clonus is very marked, while on the right side the knee reflex is normal, and there is no ankle clonus.

There is no facial paralysis, but there is a fine tremor of the eyelids of each side when they are closed.

The radial pulses are alike in strength of beat, and the limbs are alike in temperature, as far as can be made out by the hand.

The heart and lungs are investigated and seem quite normal.

There is over the body a sudaminous rash. He sweats a good deal, but has not noticed that one side of the body is more affected than the other.

The right calf, 5 inches below patella, measures 14 inches; the left, $12\frac{3}{4}$ inches.

Urine.—Specific gravity, 1022; acid, high coloured. Slight haze in heat test for albumen. No sugar.

At my request, Dr. T. K. Monro investigated the case, and made the following notes upon the 12th April, 1896:—

Girth of wrist just above styloid process (narrowest part of fore-arm), $6\frac{5}{8}$ inches on both sides; 3 inches below external condyle of humerus, on right side $9\frac{7}{8}$ inches, on left $9\frac{1}{2}$ inches; at deltoid insertion, on right side, $9\frac{7}{8}$ inches; on left, $9\frac{1}{4}$ inches; at mid-upper arm, right side, $10\frac{1}{4}$ inches; on left, $10\frac{1}{2}$ inches.

It appears to Dr. Monro, after careful examination, that a distinct, though very slight, difference can be detected between the two sides of the face. Even at rest the left naso-labial groove is scarcely so deep as the right, and the difference is quite as evident when patient is told to show his teeth. The ocular movements appear to be perfectly carried out.

It will be seen from the figures given above, that the left upper limb is, on the whole, slightly thinner than the right, but it must be remembered that patient is naturally right-handed. The greater relative thickness of the upper arm on the affected side appears to Dr. Monro to be possibly connected with a certain degree of permanent spasm of the left biceps.

It is found to-day that there is a certain tendency to ankle clonus on both sides, in so far as a single blow on the *tendo Achillis* will call forth several contractions of the calf muscles when the leg is in the appropriate position on either side. With a little trouble a fully established ankle clonus is obtained on the left side, though not on the right. Knee-jerk is well marked on both sides, and is particularly brisk on the right side. The cremasteric reflex is present on both sides alike, and the abdominal reflex is also obtainable on both sides. On first trial it is particularly brisk on the left side, but afterwards scarcely more so than on the right side.

Patient appears not to have been troubled at any time with actual pain in the affected limbs.

Dr. Monro thinks the evidence conclusive that the lesion in this case is one impairing the integrity of the upper segment of the motor path within the cranium.

The fundi, on examination, seem normal.

14th April, 1896.—At 2 P.M. to-day patient had a rigor. No observations of his condition were noted (as he made no complaint) until 4 P.M. At that time profuse perspiration had broken out all over his body uniformly, and his temperature was 104°. On interrogating him it is found that he had a slight attack of ague on 11th April, which also passed over without complaint being made, and was therefore not noted.

16th April.—Patient had another attack of ague, beginning again at 2 P.M. to-day and lasting about six hours. The maximum temperature was 103°.

Treatment.—12th April.—Patient to passively move the affected fingers for ten or fifteen minutes morning and evening, so as to gradually increase the maximum range of movement; the suppleness of the fingers to be increased by bathing and shampooing; the affected fingers to be regularly exercised as soon as possible by some mechanism resembling a key-board.

R.—Liq. strych. hydrochlor.,	. . . .	1 dr.
Spt. chloroformi,	. . . . .	2 drs.
Inf. quassiæ,	. . . . . ad	6 oz.

SIG.—Half an ounce three times a day twenty minutes before food.

15th April.—

℞.—Calomel., ... 2 grs.

Sig.—To take during afternoon.

1st May.—Stop liq. strychninæ.

℞.—Pot. iod., } . . . . . āā. 2 drs.
Pot. brom., }
Tk. nuc. vom., ... 1 dr.
Syr. aur., ... 1 oz.
Aq., ... ad 8 oz.

Sig.—Half an ounce three times a day.

2nd May.—Galvanic current, 5 to 10 milliampères, thrice weekly, positive pole at nape, and negative down spine and left arm.

[Since the patient was shown to the Society, the following additional notes have been made:—

6th June.—During his residence patient had one or two malarial attacks after those noted above. Since 2nd May, when galvanic stimulation was begun, his hand has been less spastic than before; the fingers can now be passively extended with the use of less force. The improvement, however, has been slight. Dismissed to the Home to-day.

26th June.—This man reported himself to-day on his return from the Home. No improvement falls to be noted in the condition of his hand. His general health, however, is much better.

August.—Nurse informs us that he is now an inmate of Stirling District Asylum, Larbert.]

It is very difficult, in my opinion, to form any very precise diagnosis as to the actual site or nature of the cerebral lesion in this case. On the whole, I think there can be no doubt that the lesion is definitely related to the attack of enteric fever. It is perhaps more likely to be cortical than ganglionic, notwithstanding the absence of fits; and, having regard to what seems to have been a thrombosis in the vessels of the right thigh giving rise to swelling of the limb, it has most probably been of the nature of a surface thrombosis of the right motor convolutions.

Dr. Monro was of opinion that the lesion was situated in the internal capsule, the absence of convulsions rendering a cortical situation improbable. The age of the patient, and the gradual development of spasm, necessarily excluded hæmorrhage. But a small stationary tumour might account for the symptoms, and it was known that tubercular growths in the brain sometimes followed enteric fever. Embolism was also a recognised occurrence in connection with specific fevers generally. The absence of any history or evidence of syphilis was so far against the theory of syphilitic thrombosis, but such a diagnosis was at least possible.

Dr. W. K. Hunter reported that the electrical investigation of the case showed diminution of the responses to both currents in the muscles of the left upper limb; the condition in the left lower limb was similar, but less marked.

Dr. R. M. Buchanan said the close relation of typhoid to the development of paralysis suggested the probability of a lesion due to thrombosis being the cause of the present illness. The lesion may have been cortical, as absence of fits is no evidence that the lesion is not cortical. In the spastic condition of children few manifest epileptic seizures. Extensive contracture and rigidity are marked features in these cases, therefore this case is on a par with the spastic hemiplegias and spastic paraplegias of children depending on cortical disturbance due to surface thrombosis.

III.—ON THE JAUNDICE OF EARLY INFANCY, WITH A CASE OF CONGENITAL OBLITERATION OF THE BILE-DUCTS.

By Dr. J. Lindsay Steven.

On the 19th February, 1896, a male child, aged 4 months, suffering from infantile (congenital ?) jaundice, was admitted, along with his mother, to Ward 8 of the Glasgow Royal Infirmary under my care; but before relating the case in detail, and demonstrating to you the abnormal condition of the liver, I shall make some remarks upon the general subject of jaundice occurring during the first days of life, or *icterus neonatorum.*

Icterus neonatorum may be of two varieties—it may be *mild* or *grave.*

1. *The mild variety* usually sets in on the second or third day after birth. The yellow discolouration is not equally marked all over, and is generally most pronounced upon the

forehead, round about the mouth, and on the trunk. The urine in such cases may not stain the linen, and frequently the motions are not specially pale, but as a rule the conjunctivæ are distinctly jaundiced. The prognosis is almost always good, and in the course of eight or fourteen days at most the yellow colour fades, and the skin resumes its normal appearance. It is unnecessary for our present purpose to discuss in detail the various theories which have been advanced as to the pathology of this mild form of jaundice. You will find an admirable summary of them in the first volume of Henoch's treatise on the *Diseases of Children*, translated by Dr. John Thomson for the New Sydenham Society. Some authorities regard the jaundice as *hæmatogenous* in origin, the yellow colouring matter being due to a great destruction of red blood corpuscles taking place immediately after birth, as the result of a great number of red discs being forced into the infant's vessels from the placenta. Others explain the yellow discolouration of the skin and internal organs by supposing it to be due to an actual absorption of fully formed bile, *hepatogenous jaundice*. As to the discolouration being bilious there seems to be no doubt, although as to the actual mode in which it is brought about we still require more light.

The affection is very common, and is well known among the poorer classes, by whom it is frequently spoken of as the "yellow-gum." The following figures from Baginsky's handbook (1889) will give you some idea of its great frequency:—Porak found it 198 times in 248 children, or 79·8 per cent; Kehrer, 474 times in 690 children, or 68·7 per cent; Elsässer, 215 times in 434 children, or 49·5 per cent; Seux, 64 times in 406 children, or 15·6 per cent; Cruse, 261 times in 308 children, or 84·46 per cent. These figures are sufficient to show that even at the lowest estimate it is a very frequent disorder. If we take the sum of the figures just quoted, we find that the disease occurred 1,212 times in 2,086 children, or 58·1 per cent. It is said that on the whole boys are more frequently attacked than girls.

As regards the treatment of this affection little need be said. Henoch and Baginsky are both agreed that the prognosis of uncomplicated cases is always favourable. Henoch says—"One need scarcely speak of treatment since the affection disappears spontaneously. All that is required is good nursing, with attention to the bowels when necessary."

2. *The grave variety* of icterus neonatorum is associated

with serious organic lesions, and is almost always a fatal disorder. It is sometimes a septicæmic condition, due to an erysipelatous inflammation attacking the navel, not infrequently the result of "puerperal infection of the umbilical wound."

Occasionally this form of infantile jaundice is caused by syphilitic hepatitis, and Henoch has reported a case in which he was of opinion that the affection of the liver had originated during intra-uterine life. The child died deeply jaundiced at the age of 10 weeks, and in the liver the "bile-ducts were found *post-mortem* to have been entirely transformed into thick fibrous masses filling the portal fissures."

In a number of cases the icterus is due to congenital absence or obliteration of the bile-ducts. Fortunately this affection, of necessity in the long run fatal, is comparatively rare, and Henoch, with his large experience, had in 1889 only met with three cases, two coming to a *post-mortem* examination. One of the best monographs in our language on congenital obliteration of the bile-ducts is that of Dr. John Thomson, of Edinburgh, published in 1892, to which I would refer you for exceptionally full and accurate details of the affection. In his monograph Dr. Thomson has collected and carefully tabulated forty-nine cases which were confirmed by *post-mortem* examination, and before proceeding to describe in detail the present case I may state a few of his conclusions, which are of clinical importance. With regard to the health of the parents his statistics do not establish anything of great etiological significance. In only five out of the ninety-six parents was evidence of syphilis obtained; and in several cases one or both parents had suffered severely from some digestive derangement. There also occasionally seems to be a "tendency for the disease to occur in more than one child of the same parents." In this regard a case reported by my friend, Dr. John Glaister, is worthy of note—"Out of seven children in the same family four had died jaundiced, and two were less severely jaundiced and recovered." The jaundice may set in from the day of birth up to nine or ten days after it; in a very few cases it may not appear for a fortnight or more. Bile is generally to be made out in the urine, and, after all the meconium has been passed, the motions are usually white. If they are white from the first, it indicates that the obliteration of the biliary passages has taken place at a very early period of intra-uterine life. Spontaneous hæmorrhage is one of the commonest complications, having occurred in fully half of the recorded cases. Life may be prolonged from one week to four months; in two of the

cases the children lived into the eighth month. Those of you who desire to study the pathology of this interesting disease may do so in the pages of the monograph itself; it is unnecessary for me to enter upon it here, further than to say that Dr. Thomson does not think that syphilis has very much to do with the causation of the diseased condition of the biliary passages.

We are now in a position to consider in detail the clinical features and *post-mortem* appearances of my own case. The child had been seen in the Dispensary by Dr. Walter K. Hunter, who, recognising the gravity of the condition, advised the mother to seek admission to the ward. The mother stated that she first noticed the discolouration about a week after the child's birth, when she had risen for the first time after her confinement. Her attention was first drawn to the dark colour of the child's eyes and cheeks; but it was not until about three weeks after this that the idea of the child being the subject of jaundice was suggested by a neighbour. She then consulted a medical man, who prescribed powders without any good effect.

The baby was the first, and was born at full time without any trouble. During the last two months of pregnancy the mother was very much troubled with "bile," vomiting very frequently, and taking a violent dislike to many kinds of food. Previously she had always been healthy, except for occasional bilious attacks. The father was perfectly healthy. The parents of the child were newly married, and were each about 22 or 23 years of age. The paternal grandfather, who, as well as the father, was seen by myself, was a healthy-looking man of middle age. The maternal grandfather died of phthisis pulmonalis, the grandmother of general debility.

The baby had all along been fed at the breast; and from the first the bowels moved quite regularly, but the motions were persistently pale, and, as described by the mother, "like curdled milk." During the first month after birth the child was very fretful, but was otherwise well. On special inquiry as to whether the yellow discolouration of the skin was present at the time of birth, the mother was unable to say, but she thinks it must have been. There was no trouble with the cord or the umbilicus after birth. During the week or two preceding admission the child was frequently seized with vomiting after taking the breast, but this was likely to have been the result of over-distension, as it generally occurred when he was fed after waking from a long sleep.

On admission the child was intensely yellow, the discolouration being perhaps most strikingly seen in the conjunctivæ. Otherwise the baby looked very healthy and well nourished. Although, on the whole, he was very fretful and cried constantly, at times he was cheerful, jumping and crowing, and smiling in his mother's lap, even after his admission to the ward.

A careful physical examination of the heart, lungs, and liver gave no sign of any abnormality. The urine had a clear greenish-yellow colour; there was little or no sediment, the reaction was acid, and it contained no albumen. There was not enough to take the specific gravity, and the urine could only be examined on one occasion.

On the evening of the 21st of February vomiting took place, and the vomited matter was tinged a pink colour as if it contained blood.

On the morning of the 22nd of February the motions of the bowels were for the first time observed to be black and tarry. There was moderate diarrhœa all day, and the evacuations were uniformly black in colour, and sometimes mixed with bright red blood. Throughout the day the child was very fretful, and on account of its evidently debilitated condition, it was found necessary to administer brandy somewhat freely. About 8·30 P.M. on the same day he became somewhat suddenly blanched, and it was impossible to feel the pulse. The respiration soon became embarrassed, and death took place about 10 o'clock. After death, some bright red blood escaped from the mouth and the rectum.

With very great difficulty indeed I obtained permission for a partial *post-mortem* examination of the abdomen, which was performed by Dr. Charles Workman, whose report I shall now read:—

"*Summary of post-mortem.*—Absence or obliteration of hepatic and cystic ducts. Cirrhosis of the liver. Hæmorrhage into stomach and intestines.

"*External appearances.*—The body is that of a fairly well developed child for the age of 4 months, and it is also very well nourished. The skin and conjunctivæ are stained of a deep yellow colour. On opening the abdomen (permission having been obtained for this only, and that with great difficulty), the stomach and intestines were found to contain a considerable quantity of blood, which had evidently escaped from the greatly congested capillaries without any gross rupture. The spleen was of large size, firm in consistence, and deeply congested. The pancreas presented a remarkably

healthy appearance, and it was possible to press some whitish fluid from its duct into the duodenum through the papilla. The gall-bladder contained only clear colourless fluid with white shreds; it was of small size and somewhat shrunken in appearance. The cystic duct, the hepatic ducts, and the common bile-duct had either never become patent, or had been transformed into white fibrous cords, and it was evident that no bile had ever made its way into the gall-bladder or into the duodenum. The liver was of fairly large size, and presented a dark green colour, with a remarkable marbled appearance of the cut surface. The free surface of the organ was the seat of distinct but very fine granularity, quite evidently of cirrhotic origin. The kidneys were very markedly lobulated, and their capsules were removed without difficulty. On section they were found to be deeply congested, but the cortex and pyramids presented quite normal relationships.

"*Microscopical examination* of sections of the liver, stained in alum carmine solution, revealed a very marked cirrhosis, with in many parts the portal areas choked with leucocytes. The cirrhosis involved groups of lobules, and was therefore of the multilobular variety. The rows of liver cells in many of the lobules were separated as by dilated capillaries; the microscopic bile-ducts were numerous, of large size, and frequently filled with inspissated bile. In many parts of the hepatic tissue granules of bile pigment were observed."

We had, on the whole, during the life of the child, little difficulty in arriving at the opinion that the jaundice in this case was likely to be due to some organic obstruction or defect of the biliary passages.

It is perfectly obvious that with a serious structural defect of the kind demonstrated at the *post-mortem*, and which I now show you in the dissected specimen, treatment could have been of no avail; and the lesson the case teaches us is that whenever an icterus neonatorum persists longer than a week or two we should be prepared for the presence of a serious organic lesion and an ultimately fatal issue. If you compare the history of the case with the quotations I have made from Dr. Thomson's monograph, you will see that almost in every respect it conforms to the description which he has so well given. As to the actual cause of death in this case, I think there can be no doubt that it was due to the sudden and somewhat severe hæmorrhage from the stomach and bowels.

Dr. R. M. Buchanan said he had seen two similar cases.

Both patients were intensely jaundiced. There was a deep and dark discolouration of the organs and obliteration of the hepatic ducts. Gall-bladder and cystic duct intact. The general condition was as described by Dr. Lindsay Steven.

IV. — ADDISON'S DISEASE WITH PHTHISIS PULMONALIS AND ATYPICAL PIGMENTATION OF THE SKIN.

MELANODERMA WITH SYMMETRICAL PATCHES OF LEUCODERMA.

By Dr. Hawthorne.

Case I.—The suprarenal capsules now shown exhibit the changes characteristic of Addison's disease. Each is considerably enlarged, hard, and nodulated; in section the distinction between cortical and medullary substance is seen to be abolished; and the natural tissue of the organ, with the exception of a limited area in the lower part of the right capsule, is replaced by caseous material. Fibrous thickening existed round each capsule, more especially marked on the left side, where it involved the semilunar ganglion and solar plexus. The special aspects of the case arise from the association of this characteristic pathological change with marked phthisis pulmonalis, and with a pigmented condition of the skin which, in several respects, departed widely from the appearances recognised as distinctive of Addison's disease. The patient was a woman, æt. 50, admitted to hospital in April, 1896, with a complaint of cough, shortness of breath, and general weakness. The history showed the existence of a winter cough for the past ten years. This, during the winter of 1895-96, increased in severity and became complicated with breathlessness, pains in the chest, and general failure of strength. In January, 1896, patient commenced to be troubled with vomiting, and this had continued as a very troublesome feature. About the same time, too, she observed that her skin was becoming darker, the maximum discolouration being reached, she believed, in the course of a month. The physical signs showed evidences of phthisis, and on *post-mortem* examination, not only were cavities present in the upper part of each lung, but a recent tubercular infiltration was widely distributed through the greater part of the pulmonary tissue. The undue pigmentation of the skin at once attracted attention. It involved the entire trunk, and partially also the limbs, the tint varying from a yellowish-brown to a bronze colour. The greatest depth of pigmentation was on the abdomen, extending from the umbilicus to the pubes, and over the lumbar region and

buttocks. Over the front of the chest it was of medium intensity, and this was the case also over the back. The areolæ of the nipples were of a brownish colour, but certainly in themselves would not have attracted attention in a woman of dark complexion who had borne several children. Whilst the skin of the axillæ was perhaps unusually dark, it was certainly not darker than the adjacent skin. The neck had a dark brown tint, but there was no undue pigmentation of the face. There were no stains on the lips or the buccal mucous membrane. Neither was the skin in the neighbourhood of the genitals unusually dark, though some brownish pigmentation extended down the front of the thighs, gradually dying away towards the knees. In the upper limb no great depth of pigmentation was anywhere to be observed, but the skin over the dorsum of the hand had a decidedly brownish tint, which contrasted very evidently with the natural appearance of the palm, the lines in which, however, were "picked out" in brown pigment. Over the flexor aspect of the forearms an appreciable brown discoloration was present, and this terminated abruptly in a straight line at the base of the palm.

In connection with the diagnosis, the question necessarily arose whether the pigmentation was to be regarded as indicative of disease of the suprarenal capsules, or as a discoloration of the surface such as is occasionally seen in chronic phthisis. There could be no doubt that the pigmentation of the skin did not display the distinctive characters of Addison's disease, the departure from these being especially marked in the escape of the face, genitalia, and buccal mucous membrane. On the other hand, the general condition of the woman seemed scarcely to be accounted for by the extent of the pulmonary lesion. She was decidedly apathetic, and the pulse was small and compressible with an average rate of 104, the temperature being only moderately febrile. The history of continued and troublesome vomiting, further, was in favour of the diagnosis of Addison's disease. And some stress was laid upon the condition of the hands and fore-arms, a previous case of Addison's disease in the wards having displayed to a marked degree the features also found here, viz., distinct contrast between the skin over the dorsum and palm, with "picking out" of the lines of the palm in brown pigment, and abrupt termination of the pigmentation on the flexor aspect of the fore-arm in a straight line in front of the wrist-joint. The diagnosis became increasingly confident during the progress of the case, as the apathetic condition of the patient deepened,

and there was some manifestation of muttering and great general prostration. Death occurred on 7th May, and at the end was quite sudden, patient dying quietly of syncope, a recognised danger in Addison's disease.

Whilst it is not uncommon to find evidences of healed or latent pulmonary tuberculosis in cases of Addison's disease, the existence of advanced phthisis pulmonalis with that condition is uncommon. Thus, of the 230 cases collected by Greenhow,[1] 103 were typical cases of Addison's disease without any co-existing complication; and of 80 in which co-existing disease was present, only 13 are noted as suffering from phthisis pulmonalis, though evidences of tubercle in the lungs as the sole complication were noted in 13 others, and of tubercle both in the lungs and other organs in an additional 20 cases. It is further to be remarked that in 7 of the 13 cases of phthisis pulmonalis there was no discolouration of the skin and few or none of the characteristic constitutional symptoms of Addison's disease. The present case passes out of this category, but falls short, in so far as the pigmentation of the skin is concerned, of reaching such a degree and character of development as to entitle it to recognition as a typical illustration of Addison's disease. It, however, illustrates the truth of Greenhow's [2] statement, that the cases of Addison's disease which are complicated with advanced phthisis are precisely those in which characteristic evidences of the disease are most frequently absent. In his first collection of cases [3] there are 96 classified as presenting in a fully developed form either the constitutional symptoms or peculiar discoloration of the skin characteristic of Addison's disease, or both; yet not one of these is found to be associated with advanced phthisis, whilst of 13 cases in which disease of the suprarenals was complicated with phthisis, 3 only gave fairly distinct evidence during life of the existence of such disease, the remaining 10 being free from the characteristic constitutional symptoms, and pigmentation of the skin being either absent or present to only a slight extent.

It might, of course, be suggested in the present case, that as a small though limited amount of suprarenal tissue remained, the functions of the capsules might be carried on to a slight extent, and hence the full development of the features of Addison's disease was prevented. This would involve adherence to the view that the cause of the disease was the

[1] *Addison's Disease: The Croonian Lectures for 1875.*
[2] *Clinical Lectures on Addison's Disease*, p. 32.
[3] *Ibid.*, p. 56, *et seq.*

abolition or perversion of the function of the capsules, a view which Addison[1] himself would appear to have favoured. The occurrence of cases of malignant disease of the capsules, without the existence of pigmentation of the skin or of the constitutional symptoms of Addison's disease, contradicts this view. And the cases, though few in number, in which a typical Addison's disease has existed with disease of only one capsule renders such a theory quite untenable. It is much more reasonable to suppose that the non-development of typical evidences of suprarenal disease in cases complicated with phthisis is due to the cutting short of the life of the patient before a sufficient degree of irritation of the nervous structures connected with the capsules has been produced to lead to the appearances characteristic of Addison's affection. The manner of pigmentation of the hands and fore-arms appears to be worthy of record, more especially as it is the repetition of a former experience.

Case II.—The present case, like the one just described, has for one of its prominent features an abnormal condition of the pigmentation of the skin. Unlike that case, however, the patient presented none of the constitutional symptoms of Addison's disease, and the absence of these, together with the special features of the pigmentary distribution, renders it highly improbable that there is any disease of the suprarenal capsules. The skin over a very extensive area, as is described in detail below, presented considerable excess of pigment, whilst in limited districts there was unusual pallor of the skin, and these pale patches presented a very marked symmetrical arrangement. The condition, in short, corresponds to a recognised though comparatively rare affection of the skin, variously termed leucoderma, leucopathia, or vitiligo, terms which suggest that the white patches are the prominent feature of the condition. But as the pigment which is absent from certain areas seems to be crowded into the neighbouring skin, which consequently has an unusually dark colour, some authorities apply the terms melanoderma and leucoderma, and this seems the most appropriate designation in the present case, more especially as whilst the pale areas are small and limited, the tracts of skin having an unusually dark colour are considerable and extensive.

The patient was a woman of 43 years. She was practically in a condition of chronic dementia, and no information could

[1] *On the Constitutional and Local Effects of Disease of the Suprarenal Capsules*, pp. 7, 8, 11, 14, 31, 38.

be obtained either from herself or her friends with regard to the date of appearance or mode of progress of the pigmentation. The condition of the skin is described in the following note:—"There is a broad band of dark pigment across the forehead. The skin of the neck and almost the whole of the front of the chest is unduly brown, with here and there an enclosed island of unpigmented skin. The pigmentation becomes more marked in the lower zones of the chest, and ceases in an irregular but sharply defined margin below each breast. A zone of normal skin is found over the upper abdomen, the rest of the abdominal surface being deeply pigmented, and the pigmented area presenting a sharp and definite upper margin; below, the pigmentation is continued downwards over the thighs. Almost the entire surface of the lower limbs displays marked pigmentation. This is especially noticeable over the buttocks and at the popliteal spaces, the depth of tint becoming less decided as the feet are approached. There is behind each great trochanter a large patch of pale-looking skin, and the arrangement in this respect is strikingly symmetrical. In front of each knee, too, there is a pigment free area, and along the back of the right thigh there are several areas of various size having less pigment than the normal skin. The upper limbs display the pigmentation and the symmetrical arrangement of it in a very conspicuous fashion. The greatest depth of pigment is seen in the fore-arm, extending over the dorsum of the wrist and hand. The palm on each side is not unduly pigmented, and the same is true of the skin in front of the wrist-joint. Immediately above this, however, the skin is deeply pigmented; the pigmentation commences in a sharp margin which passes obliquely upwards and inwards, and leaves the lower aspect of the fore-arm on the ulnar side free from continuous pigmentation. There are in this position irregular brown patches, arranged so as to include more or less completely areas of normal or unduly pale skin. The symmetry of the pigmentation in this respect is very striking. There is undue pigmentation on the dorsal aspect of each elbow-joint, and near the point of each elbow is a milk-white patch of skin, each with a heavily pigmented margin. The areolæ of the nipples cannot be said to be unduly dark, and are certainly not darker than the skin in the immediate neighbourhood. In the axillæ, too, the pigmentation appears to be part of a general tendency, rather than any specially localised pigment formation. There are no patches of pigment on the buccal mucous membrane. The dorsum of the trunk shows some general increase in the depth of the pigmentation, but this is not very marked."

As the patient was quite free from evidences of the constitu-

Fig. 1.

Showing the pigmentation of the trunk and fore-arms. The symmetry of the arrangement in the latter situation was more detailed than is represented here. (*From a photograph by Dr. J. H. Teacher.*)

tional disturbance which is characteristic of Addison's disease.

the possibility of the case being of that nature scarcely came within sight, and several features of the pigmentation likewise oppose such a suggestion, this being more especially true of the abrupt margin presented by the pigmented patches, and the existence of unduly pale areas of skin. Too much stress, however, must not be laid upon these features, as some cases of Addison's disease have been reported with pigmentation of this distribution. One such case was alluded to by Dr. Gairdner[1] at the discussion on Addison's disease at the International Medical Congress in 1881, and the detailed

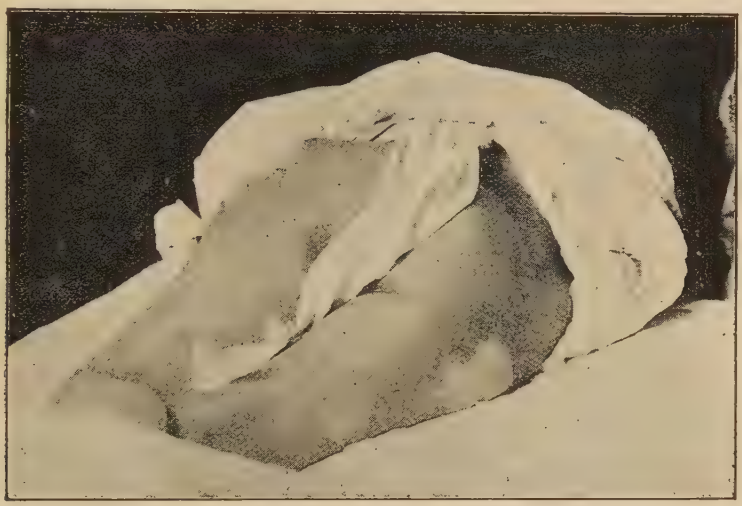

Fig. 2.

Showing the pigmentation of the buttocks and thighs, and the pale patch over each trochanter major. (*From a photograph by Dr. J. H. Teacher.*)

report of the case is given by Dr. M'Call Anderson[2] in his *Treatise on Diseases of the Skin.* Byrom Bramwell[3] also reports a case of this character. In Addison's original work, too, there is a very marked case of leucoderma figured (Plate XI), and though no *post-mortem* examination was obtained in this case, "nevertheless," says Addison, "I entertain no doubt whatever that the capsules were diseased;"[4] and his conviction

[1] *Transactions of the International Medical Congress*, 1881, vol. ii, p. 74.
[2] *A Treatise on Diseases of the Skin*, p. 30.
[3] *Atlas of Clinical Medicine* vol. i, part ii, p. 62.
[4] *Loc. cit.*, p. 29.

in this case appears to arise partly, no doubt, from the symptoms exhibited by the patient, but largely from the experience of a previous case (Case VI) which displayed "the most perfect resemblance as far as the affection of the integument was concerned,"[1] and in which the suprarenal bodies were found to be "enlarged, of rather irregular surface, and considerably indurated."[2] Addison expresses his great regret that no coloured drawing of the skin was obtained in this latter case, but when, at a later date, he figured the case with leucodermic patches (Plate XI), he stated that this "may most fairly and faithfully be applied to the above case" (Case VI).[3]

It is, therefore, manifest that caution must be exercised in excluding a diagnosis of Addison's disease on the sole ground of the pecularity of the pigmentation, but, on the other hand, the absence of any constitutional symptoms of the disease must be taken as rendering such a diagnosis inadmissible.

With reference to the distribution of the pigmentation in Addison's disease, it should be noted that Dr. Wilks[4] holds very strongly that the discolouration of the skin is always uniform, though darker in some places than others, and he indicates that to this view Addison in his later years was inclined to assent. Dr. Wilks also quotes some remarks of Addison, from which it is evident that after the publication of his original treatise, at all events, he recognised that some of the symptoms of the disease might possibly be due to disturbances produced in the nervous system in consequence of the proximity of the diseased capsules to the solar plexuses and semilunar ganglia.

Dr. Monro said the nerve origin of leucoderma requires careful examination. The disease is sometimes associated with alopecia areata, which is clearly recognised as of nervous origin.

[1] *Loc. cit.*, p. 29.
[2] *Loc. cit.*, p. 28.
[3] *Loc. cit.*, p. 29.
[4] *Guy's Hospital Reports* (third series), vol. v, p. 89; vol. viii, p. 1; vol. xi, p. 23; *Reynolds' System of Medicine*, vol. v, p. 359.

TRANSACTIONS

OF THE

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

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SESSION 1896-97.

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Meeting I.—2nd October, 1896.

Professor Gairdner, M.D., *in the Chair.*

I.—CARDIAC VALVULAR DISEASE WITH EMBOLISM, INTERSTITIAL NEPHRITIS, AND ATHEROMA OF PULMONARY ARTERY.[1]

By Dr. Chas. Workman.

The specimen consists of the heart, right lung, and one kidney from a patient aged 36, who had suffered from rheumatic fever when 9 years old, and from chorea a year later. The heart shows great narrowing and thickening of the mitral orifice, which has only a circumference of 35 mm.; the chordæ tendineæ are also greatly thickened and shortened. The left ventricle is very small, but the muscular tissue is of fair colour and consistence. The tricuspid orifice has a circumference of 130 mm., and the right ventricle is greatly dilated and hypertrophied. The coronary arteries are healthy, and the aorta is only very slightly atheromatous. The lungs are of fair size and were not specially adherent to the chest

[1] For full report see the Royal Infirmary Hospital Reports, No. 1453.

wall. The pulmonary artery is large and shows very considerable atheroma of all its branches. The artery in the right lung has the branch to the lower lobe plugged by an adherent thrombus, probably partly embolic in origin; yet there is no evidence of any infarction in connection with this obstruction. In the upper lobe there is an area of consolidation which appears, from its shape and texture, to be the result of healed infarction. In the spleen, also, there was a cicatrix, the result of an old infarction. The kidneys showed pronounced interstitial nephritis. The left Sylvian artery was completely blocked by embolism and thrombosis. There was old yellow softening in the right, and fresh yellow softening in the left corpus striatum.

II.—DESCRIPTION OF A CASE IN WHICH A PIN, LODGED IN THE LARYNX FOR FIVE MONTHS, WAS LOCALISED BY THE ROENTGEN RAYS, AND REMOVED BY EXTERNAL OPERATION.[1]

By Dr. Walker Downie.

The patient, who was 19 years of age, was first seen by Dr. Downie on 23rd March, 1896, when he complained of pain in the throat of three days' duration. The history given was that during the night of the 20th March he had placed a pin in his mouth, where it remained unobserved until the following morning, when, on swallowing the first mouthful of breakfast, he had a sharp "tearing" sensation at the back of the throat. From this time onwards he complained of pain deep in the right side of the neck about the level of the upper border of and behind the cricoid cartilage. The voice was rough and somewhat husky; the respirations were but slightly affected, and that only when he lay down, and he rarely coughed. The act of deglutition was productive of sharp pain, and during the first few days was followed by expectoration of blood.

On examination the right side of the pharynx, at and below the level of the dorsum of the tongue, was red and swollen, but no breach of surface was observed. The hyoid fossa on the right side was encroached upon by the swollen pharyngeal wall, and the fossa itself was filled with frothy saliva. The structures on the right ride of the larynx, especially the right ventricular band, were inflamed and œdematous, while the parts on the left side were unaffected. Palpation of the

[1] Full paper appeared in the *Edinburgh Medical Journal* for January, 1897.

pharynx and larynx externally and applied through the mouth produced sharp pain, but failed to detect the presence of any foreign body; and negative results also followed the use of the laryngeal probe.

The neck was examined by the Roentgen rays, and after many attempts a photograph of the pin (lateral view), lying in the position indicated by the patient, was obtained. An antero-posterior view, which would have indicated the relationship of the pin to the middle line, could not be obtained for lack of a sufficiently powerful coil. After discussing the case, the conclusion arrived at was that the pin lay in the tissues on the right side of the neck, and an exploratory incision was decided upon. The chief reasons on which the opinion was based were that the pin had gone down with food; entire absence of laryngeal irritation; the negative results of laryngoscopic examination and exploration by laryngeal probe; and all subjective symptoms being on the right side. An incision was made to the right of the thyroid cartilage; but no foreign body was found in the tissues of the neck, and the wound was closed. Later on Dr. D. J. Mackintosh, with an App's coil having a 10-inch spark, succeeded in obtaining both a lateral and an antero-posterior photograph (shown at the meeting), by which the position of the pin was accurately determined. It lay in the ventricle of the larynx, with the head anteriorly and the point embedded in the fourth inter-vertebral disc. The thyroid was then cut down upon in the middle line, where the head, which was ulcerating its way through the cartilage, was seen and grasped, and the pin removed.

Dr. Downie then drew attention to the action of the x rays on the skin and hair. In his case vesication of the skin over the back of the neck and falling out of the hair over the occipital region occurred; and he drew particular attention to the fact that the patient made no complaint of discomfort in this region, nor was anything unusual observed until ten days after the last exposure. Pricking and heat over the surface were then complained of, and these were followed by vesication and sloughing of the skin and by falling out of the hair.

Dr. Sewell, Helensburgh, had seen somewhat similar effects in a case in which the Roentgen rays had been used with a view to detect a vesical calculus. The exposure had been of two hours' duration, and after an interval of seven days had been followed by itching and redness of the skin, and subsequently by extensive vesication. Dr. Sewell submitted photographs showing the condition in various stages.

Dr. Faulds had used the *x* rays in at least 150 cases at the Royal Infirmary, and had never seen any bad effects.

Dr. Newman congratulated Dr. Downie upon the successful result of the careful search he had been able to make by means of the *x* rays. The case was an illustration of a group in which the rays provided information for diagnostic purposes not otherwise obtainable, as distinct from those in which the rays merely made manifest facts capable of being elicited by other methods. Some years ago he had had experience of a case in which a piece of metal had gained access to the larynx and was only detected after repeated examinations. It was removed through the mouth, but not entire, and the remaining portion was spontaneously discharged some years after.

III.—CASE OF INTRA-CRANIAL TUMOUR, WITH MENINGITIS.

By Dr. A. Napier.

M. R., aged 16, a general servant, was admitted to the Victoria Infirmary on the 25th of July, suffering from severe headache of ten days' duration. Patient is a ruddy, well-nourished girl, who has always hitherto enjoyed excellent health. Family history good; no trace of tubercular taint. She has a scar at angle of left jaw, where she says she had a swelling of some kind (probably glandular) in very early life. The pain involves the head in general, but is specially severe on left side, particularly in the ear; it extends also to the neck, and radiates over the shoulders. The pain is evidently very severe, causing the girl to moan incessantly, except when she is under the influence of sedatives, without which no sleep is obtained. Noise of any kind irritates patient; vomiting has occurred repeatedly. No fever; temperature on admission, 97·6°, and subnormal throughout entire course of case. Bowels irregular, tending to constipation. No sign or history of ear discharge, carious teeth, or sore throat; no pain in body or limbs. Tapping on head does not increase the pain. Patient declares that her eyesight is as good as ever it was. Pupils equal, and fairly dilated. No squint. Tongue furred. Pulse, 54. Urine non-albuminous.

On day after admission slight squint was noticed, and in a day or two more the external rectus of left eye was found to be absolutely paralysed. The pain continued, being very little modified by treatment, for well over a fortnight. There was still occasional vomiting, and bowels moved only in response to purgatives. Pulse continued slow, usually 52 to 56 per minute.

About a week after admission it was noted that pain was

still very acute on left side of the head, that it had become more severe down the neck and across the shoulders, and that on account of it the head was held in the retracted position, any effort to raise it from the pillow greatly aggravating the headache. In addition to the paralysis of the left external rectus, the pupils were found to be dilated, the left more than right. The muscles of right eye showed no sign of paralysis, but they acted spasmodically, causing a twitching of the eyeball in the execution of ordinary movements. Vision was dim in both eyes, patient being unable to read with either eye the large type at head of her chart. Patient also mentioned a sensation of coldness on right side of face, and also a peculiar feeling, which she could not clearly describe, on right side of tongue. On testing, no definite indication of altered sensation could be made out.

On 11th August, Dr. George Hunter examined patient's eyes, and made the following report:—"Both corneæ show marks of old strumous ulceration, the right so much so as to render it difficult to get a clear view of the fundus. In both eyes, however, there exists a well-marked optic neuritis, the disc being swollen and red, with greyish streaks, with the outline completely lost in whitish exudation. At the lower and inner border—of left especially—there are streaks of hæmorrhage, and the retinal veins in both are engorged and tortuous. *Diagnosis:* double optic neuritis."

About the middle of August patient began gradually to improve, and in a week more was practically free from pain. The eye condition was unchanged, however. On being allowed out of bed, she had no dizziness nor any difficulty in walking. It was then found that the knee-jerks, though not entirely wanting, were markedly diminished.

Three weeks later, early in September, it is noted that patient continues practically quite well, being up and about the ward all day. She can now turn the left eye slightly outwards.

At end of September patient was still well; the knee-jerks had reappeared; and the left eye could now be turned outwards to almost the normal limit.

On 1st October the eyes were examined by Dr. Hunter, who gives the following report:—"The corneæ have shared in the general improvement, but are still—the right especially—dimpled and nebulous in parts.

"The ocular movements are now satisfactory, although there is noted a moderate strabismus convergens in *right* eye. The paralysis of left external rectus is quite gone.

"By the ophthalmoscope:—There is myopia of almost 6

dioptres. The appearances as regards the optic discs are those of a *consecutive atrophy.* The nerves are pale, almost white, in colour; their outline is well-marked (save for incipient staphyloma posticum, as is common in high myopia); there is slight excavation of their surface, and the lamina cribrosa is not well seen, in consequence of deposit, the result of the past inflammatory condition; and the retinal vessels are slightly diminished in calibre.

"The appearances are in marked contrast to those formerly noted; but such changes are not seldom seen in optic neuritis dependent on cerebral tumour.

"I think some hæmorrhages were noted formerly. There are none now, and the only possible result of any which I now see lies in a certain greyish appearance of the retina to the inner side of left optic disc."

As regards visual acuity, patient, with right eye, can make out only "Victoria Infirmary" at head of chart, while with the left she can read comparatively small type, but very close to eye.

Treatment.—Antipyrin; bromides and chloral; morphine hypodermically when pain was otherwise uncontrollable; perchloride of mercury with iodide of potassium, combined with mercurial inunction; all were tried at various times, but the remedy which seemed of most service was chloral. The head was shaved, and the ice-bag applied; sinapisms also were placed along the cervical and dorsal spines.

Remarks.—At first this case was regarded as one of meningitis (cerebro-spinal) pure and simple, but soon the question as to the possible existence of tumour, presumably tubercular, arose. For the former diagnosis we had the following signs:—severity of pain, and its locality—in left side of head, back of neck, and shoulders; retraction of head; extreme sensibility to noise; squint; vomiting; constipation; nebulous corneæ; scar at angle of left jaw, following glandular enlargement. For the presence of tumour we had:—paralysis of external rectus of left eye; double optic neuritis, with consecutive atrophy; almost complete loss of knee-jerks—a recognised sign of cerebellar tumour; slow pulse; subnormal temperatures throughout; recovery.

In all probability *both* conditions were present—tumour and a passing meningitis.

Dr. Alex. Robertson was disposed to regard the case as one of tubercular tumour, perhaps in itself not very large, but accompanied by inflammatory action extending so as to involve the left sixth nerve and the upper part of the spinal meninges.

The evidences of the tuberculous diathesis presented by the patient, and the subsidence of the symptoms under the influence of the favourable hygienic conditions existing in the Victoria Infirmary, favoured the view that the disease was tuberculous in character.

Dr. T. K. Monro regarded the diagnosis of a tubercular tumour as fairly certain. The absence of improvement under mercury opposed the suggestion of syphilis, and as the extension of the pain to the neck, the retraction of the head, and the absence of the knee-jerks were in favour of the growth being in the cerebellum, this situation, on the grounds of experience, supported the tubercular theory. The paresis of the left sixth nerve he looked upon as an indirect pressure effect.

IV.—CASE OF CHRONIC RENAL DISEASE IN WHICH THE KIDNEYS WERE FOUND TO DIFFER GREATLY IN SIZE.

By Dr. Alex. Napier and Dr. T. K. Monro.

Clinical History.—J. P., admitted to Victoria Infirmary on 3rd July, 1896, suffering from chronic Bright's disease; dismissed on 31st July, "improved."

Three years previously patient had had right hemiplegia, involving arm and leg; latterly he has been very subject to bronchitis. He had recovered entirely from the hemiplegia. Four months before admission the face, hands, and feet began to swell; breathlessness became more pronounced, amounting to actual orthopnœa at night.

Urine scanty; much albumen. No headache. Heart's boundaries normal, and all sounds pure.

Readmitted on 31st August; died on 5th September.

After leaving hospital swelling soon reappeared, with severe headache and breathlessness. Urine was scanty (18 oz. in twenty-four hours) and loaded with albumen. Universal cutaneous œdema; no ascites. Chest barrel-shaped; hepatic, splenic, and cardiac areas of dulness all lower in level than normal. Pulsation and tenderness in epigastrium. Apex-beat of heart inappreciable; first sound reduplicated; V.S. murmur audible at apex and in epigastrium; visible pulsation of brachial artery at bend of elbow.

Calomel and jalap were given, and a diuretic mixture containing digitalis. Under this treatment patient felt better, orthopnœa disappeared, anasarca diminished, and urine increased to 80 and 90 oz. per day.

On fifth day after admission patient became delirious, and shortly afterwards hemiplegic on *left* side, and almost quite unconscious. Left arm, leg, and left side of face involved; sensation apparently abolished on left side of face. Urine and motions passed in bed. Marked ankle clonus elicited in both feet. Cheyne-Stokes respiration. Death on 5th September.

Notes of the Autopsy.—Large hydrocele on the right side. Great hypertrophy of both ventricles of the heart, which weighed 24 oz. Aortic and pulmonic valves competent. Dilatation of both auriculo-ventricular orifices. Heart in other respects normal.

Right lung adherent to the chest wall. Marked fibrosis of lower part of lower lobe of left lung, so that tissue from this part sank in water. Emphysema of remaining part of left lung and of right lung. Both lungs very dark all over from black pigmentation. Bronchial lymph glands also black.

Nothing noteworthy in spleen and liver.

Right kidney (weight, $7\frac{3}{4}$ oz.) weighed more than three times as much as the left (weight, $2\frac{1}{4}$ oz.) Stellate veins were seen on the surface of the right kidney; the cortex was present in fair bulk; the capsule was only slightly adherent. The left kidney had a rough surface, and but a trace of cortex; the capsule was only slightly adherent.

The large basal arteries of the brain were atheromatous. There was softening of great part of the right caudate nucleus and of the outer part of the lenticular nucleus. The internal capsule was not obviously damaged. No lesion was discoverable in the left hemisphere.

Remarks by Dr. Monro.—It is quite common to find the heart of more than double the normal weight (10 oz.) It is not so common to meet with kidneys so unlike one another in size as the pair now shown. It is probable that the left was congenitally small, and that the right underwent compensatory hypertrophy. It is true that disease may affect one kidney more than the other, but probably most of the difference here is not due to disease. In May, 1893, I met with a case at the Victoria Infirmary, where the kidneys differed still more in weight, the right being $2\frac{1}{4}$ oz., and the left $8\frac{1}{2}$ oz. The smaller kidney showed a certain degree of granularity; the larger was firm and somewhat congested.

V.—Case of Dyslexia—A Peculiar Form of Word-Blindness.[1]

By Dr. James Hinshelwood.

Dr. Hinshelwood narrated the facts of the case, which comprised word-blindness after two or three words had been read, and loss of visual memory for places. The patient also exhibited complete inability to follow his occupation as a tailor, failing to recognise the relative shapes and positions of the pieces given to him to make up into garments. Dr. Hinshelwood considered that the connecting fibres between the visual perceptive and visual memory centres were in an abnormal condition, so that their power of conveying impressions was soon exhausted. Hence the appearance of word-blindness after two or three words had been recognised. He suggested that this abnormal condition was due to the toxic effect of alcohol, to the abuse of which patient had long been addicted. Under the influence of total abstinence, and the use of general tonics, patient made a complete recovery.

Professor Gairdner, in discussing the case, expressed the opinion that whilst the term "word-blindness" was liable to abuse, its employment was almost essential in connection with the complicated phenomena of aphasia. He referred to several cases in which various forms of loss of the power to appreciate ideas expressed by particular symbols existed as a result of brain lesions. He considered the exact science of this complicated subject would be promoted by such detailed analyses of cases as Dr. Hinshelwood had recorded.

Dr. Alex. Robertson thought that in such a case as that presented something must be allowed for general deficiency in the intellectual powers; he also had some difficulty in allowing that the toxic influence of alcohol habitually taken in excess could be manifested in a special and peculiar manner upon a limited area of brain substance.

Dr. Hinshelwood, in reply, remarked that in this case there was no general failure of the intellectual powers, and that it was a familiar fact of clinical experience that the toxic influence of alcohol frequently manifested itself by attacking special and limited parts of the nervous system, as in paresis of ocular muscles, and alcoholic amblyopia.

[1] A complete account of the case appeared in the *Lancet*, 21st November, 1896.

Meeting II.—23rd October, 1896.

The President, Dr. W. L. Reid, *in the Chair*.

I.—Case of Cervical Spina Bifida Healed Spontaneously.

By Dr. C. O. Hawthorne.

The patient is a girl of 8 years. At birth there was a large tumour situated in the cervical region, and extending a considerable distance round on each side of the neck. The mother understood from the medical attendant that she must not expect the child to survive. From the second year the tumour began to diminish in size, the diminution being attended with leakage from the surface. It reached its present condition when the child was about 4 years old. As now seen, it is a subglobular mass situated in the median plane about the middle of the cervical region; it has a shrivelled appearance, and communicates a boggy sensation when handled. It is distinctly pedunculated, and above its level is a wide gap separating the muscular masses on opposite sides of the neck. The finger introduced into this gap does not detect any distinct prominences as of the cervical spinous processes, and presumably, therefore, the osseous structures are imperfectly formed here as well as at the level through which the tumour passed out of the spinal canal. At no time has the child suffered from convulsions or paralysis. There has never been any tendency to hydrocephalus, and the mental development is good. Dr. Hawthorne demonstrated the prominent features of the case and suggested that whilst originally the tumour was a true spina bifida, its communication with the spinal canal had now become obliterated, and the fluid it originally contained had been discharged or absorbed.

II.—Case of Malignant Tumour Originating in Connection with the Root of the Right Lung and Associated with Multiple Malignant Tumours, some of which were situated in the Integument.

By Dr. John Lindsay Steven.

The case to which I propose shortly to direct your attention this evening is of twofold interest and importance—(1) On account of the ease with which, after admission to

hospital, a diagnosis of intra-thoracic malignant disease was made; and (2) because of the difficulty in deciding from the histological characters alone whether the growth is to be regarded as of cancerous or of sarcomatous nature. As regards the first of these points the case now to be related may be advantageously contrasted with that which I reported in the *Glasgow Medical Journal* for 1896, and in which the malignant mediastinal mass was only discovered after the death of the patient. With reference to the second point I would like to insist upon the similarity of the present case to one of primary cancer of the mediastinum originating in the tissue of the right bronchus which I have recorded in my book on *Mediastinal Tumours*.[1] In their clinical development the resemblance of the two cases is remarkably close and striking, both as regards the lesion at the root of the lung and the development of superficial and tegumentary tumours.

Bearing my former case in mind, notwithstanding the difficulties raised by the histological examinations which are referred to in the report of Dr. Workman, I am much inclined to regard the present case as of cancerous nature.

Matthew J., a draper, æt. 45, was admitted to Ward 7 on 18th September, 1896, on the recommendation of Dr. Burges, of Crown Street, on account of a swelling, of two months' duration, on the left side of the front of the neck, accompanied by severe dyspnœa and progressive emaciation.

The following notes of the clinical history have been supplied by Dr. Burges, who first saw the patient in his consulting rooms on 24th November, 1895:—At that time phthisis, chiefly confined to the left apex, was diagnosed, but the respiratory murmur at the right apex was also noted to be harsh, and the percussion note if anything hyper-resonant. At this time the back of the chest was not examined. By the middle of December he was worse, without much change, however, in physical signs, although his face had become pale and pinched, and he was suffering much from hectic sweatings. About the same time, also, the patient directed attention to a small tumour in the right supra-scapular region, which increased rapidly in size, and at one time was suggestive of abscess or cyst. From the 3rd January till the month of March he was regularly under Dr. Burges's care, on the whole becoming worse, until the end of February, when some improvement took place, and the tumour became smaller, and firmer in consistence. It was, however, very tender, so that he could not bear the pressure of his clothes upon it.

[1] H. K. Lewis, London 1892, p. 52.

Upon the 9th May, Dr. Burges removed the tumour, and upon microscopical examination regarded it as a round-celled sarcoma. After this his general health improved very much for a time.

Shortly after the new year, when the patient was first confined to his bed, Dr. Burges discovered a patch of dulness extending from the spine of the scapula to the base of the right lung, and reaching outwards as far as the angle of the scapula. Over the dull area the vocal resonance was absent, and the R.M. became progressively weaker, ultimately disappearing altogether in a week or two. No history of antecedent pneumonia or pleurisy could be made out. The doctor suspected encysted pleural fluid, but careful exploration at several points of the dull area gave no result.

About the beginning of July the patient noticed a small tumour beneath the anterior edge of the left sterno-mastoid, about the level of the larynx. During the month of August the tumour enlarged, and he did not feel so well. On 3rd September, Dr. Burges was again called in, and found the patient apparently suffering from laryngeal spasm; but at the same time the doctor was clearly of opinion that the R.M. had returned somewhat at the right base behind.

After his admission to Ward 7 the patient's chief suffering was caused by severe dyspnœa, often of a distinctly spasmodic character, but without definite stirdor. Cough, with profuse expectoration, which had been present more or less since his first illness in January, was very severe, keeping him awake at night. He had little or no pain or difficulty in swallowing, but said that he had to be very careful to masticate his food well. The family history was quite satisfactory, and the patient's habits had always been good. He was extremely cachetic, and his voice was as times rather hoarse. The respiratory difficulty was not definitely laryngeal, but soon amounted to definite orthopnœa, and in the night-time frequent spasmodic exacerbations occurred. Dr. John Macintyre examined patient on 1st October, and was of opinion that the spasmodic dyspnœa was as much bronchial as laryngeal, and advised against the performance of tracheotomy except in extremity.

At the left side of the neck below the margin of the sterno-mastoid there was a hard tumour, somewhat ovoid in shape, measuring 2 inches in transverse and 2½ inches in vertical diameter. The tumour had displaced the thyroid cartilage and the upper rings of the trachea slightly to the right. It was of firm consistence, and on the whole painless. Shortly

after admission, a small gland-like tumour was discovered in the left axilla, and a similar nodule—subcutaneous in position—was detected behind the left trochanter major. These masses were about the size of haricot beans.

On examination of the chest the heart was found to present healthy characters, and generalised bronchial wheezing was detected all over the lungs. The sputum was purulent, nummular, and abundant, but no tubercle bacilli could be found in it. Marked dulness was made out at the right base behind, the highest level being at the fifth spine, from which its upper margin sloped downwards and outwards so that at the lowest level the dulness extended outwards 5 inches from the middle line, the distance out at the highest level being $1\frac{3}{4}$ inch. Over this dull area the R.M. was very strikingly enfeebled, contrasting strongly with the exaggerated character of the breath-sounds over the whole of the left lung posteriorly. It was thought likely that the dulness was due to an intra-thoracic malignant mass pressing on the right bronchus and involving the base of the right lung. The patient died of exhaustion on the 4th of October, 1896.

Dr. James Finlayson, Mr. H. E. Clark, and Mr. J. H. Pringle saw the patient on different occasions during his residence, when the advisability of removing the cervical tumour was carefully considered. In view of the likelihood of there being a malignant mass within the chest, such proceeding was unanimously considered inadvisable.

Dr. Workman, who had made the *post-mortem* examination, read the following report:—

"There is a large hard tumour situated on left side of neck, which has caused some displacement of the larynx to the right. A subcutaneous nodule, the size of a hazel-nut, is found in the left axilla, and another over the left gluteus maximus. A similar nodule is situated to the right of the manubrium sterni. On raising the sternum enlarged glands are found in front of the great vessels behind the manubrium, and on removing the heart a hard mass is found occupying the pericardium. The pericardium is found to contain 4 oz. of blood-stained fluid. Both lungs are extremely adherent to the chest wall, so that the pleural cavities are almost obliterated. The right lung is almost replaced, below and behind, by a solid tumour mass, which involves almost the entire lower lobe. This tumour mass extends upwards, and appears to have taken origin from the right bronchus in its lower divisions. The divisions for the upper and middle lobes are still patent.

"When the lung is laid open the branches of the bronchus in the lower lobe exhibit very marked bronchiectasis. The upper lobe is somewhat emphysematous, and in its substance there are a few tumour nodules.

"The trachea and larynx are healthy.

"The left lung shows, on cutting into it, extreme bronchiectasis of the upper lobe. There is also considerable bronchiectasis and emphysema of the lower lobe. The middle portion of the lung is fairly healthy. The dilated bronchi in both lungs are filled with yellow, very purulent mucus.

"There is no evidence of disease in the other organs."

Dr. Workman stated that the preliminary examination of hastily cut sections from a portion of the tumour in the neck, together with the peculiarity of the distribution of the disease, and its history, made him believe at first that the case was one of cancer of the lung with secondary involvement of the back, neck, axilla, and hip.

After more careful study of sections of the primary (?) tumour of the lung, of a small nodule also from the lung, and of the tumour in the neck had been made, he was forced to the conclusion that the tumour was not cancerous, but was of that kind which we are accustomed to call lympho-sarcoma or alveolar-sarcoma. The sections from the lung show masses of moderate-sized round or oval cells with little protoplasm and with oval or round nuclei; these masses not being divided up by connective tissue trabeculæ, as in cancer, but being aggregated into large groups separated only by blood-vessels and their accompanying connective tissue. In the hypertrophied pleura connected with the large tumour, there are masses of round-cell tissue, similar to the tumour tissue, accompanying the capillaries and small blood-vessels, and sometimes surrounding them.

Dr. Workman was inclined to regard the mass in the lung as the primary disease, as, from the history of the case, the lung symptoms were first noticed and were ascribed to phthisis pulmonalis.

Professor Coats was disposed to think that the tumour was on the whole more like a cancer than a sarcoma. It appeared to have originated in connection with a bronchus, and to have followed in its extension the course of the bronchial tubes, as is the habit of cancer. The microscopic appearances were not inconsistent with this view, though after an examination necessarily cursory on his part, he did not wish to be dogmatic on this point.

III.—CASE OF ADDISON'S DISEASE WITH DISSECTION OF THE SUPRARENAL CAPSULES AND RELATED NERVOUS STRUCTURES.

BY DR. LINDSAY STEVEN AND DR. MARY BAIRD HANNAY.

The specimens consisted of the suprarenal capsules dissected and mounted, so as to show their relationships to the semilunar ganglia, splanchnic nerves, and kidneys. Typical cheesy transformation of almost the whole substance of both capsules had taken place, and there was considerable matting of the nervous elements. This was demonstrated by comparison with the dissected parts from a normal case.

The specimens were obtained from a man, aged 35, admitted under Dr. Lindsay Steven's care on the 18th September, 1896. The case was in all respects quite typical as regards the clinical history, of some six months' duration, and as regards the distribution of the pigmentation which involved not only the skin but also the mucous membrane of the cheeks and tongue. The only unusual event in the course of the case was an attack of maniacal excitement a few days before death, and lasting for a day or two. In childhood the patient had been the subject of tubercular disease of the left knee-joint. The specimens shown were dissected by Dr. Hannay.

Professor Coats, in view of recent observations on glandular function, considered it of great moment to determine in these cases whether or not any normal tissue was left in the suprarenal bodies.

Dr. R. M. Buchanan regarded the marked gastro-intestinal irritation as an indication of the involvement of the splanchnic nerve.

Dr. C. O. Hawthorne wished to say that, as bearing upon the question raised by Dr. Coats, there were cases on record, by competent observers, of typical Addison's disease in which the *post-mortem* examination revealed a lesion of one capsule only, the other being perfectly healthy. It could, therefore, scarcely be held that the symptoms in Addison's disease could in any sense be due to a change in any glandular function that the suprarenal body may possibly possess.

Dr. Steven and *Dr. Workman*, in reply, stated that apparently the whole tissue of the suprarenals was replaced by caseous material, and in answer to Prof. M'Call Anderson, it was intimated that the semilunar ganglia appeared to be enlarged, and that there was some matting in the neighbourhood of the solar plexuses.

IV.—BIOGRAPHICAL SKETCH OF WM. CULLEN, M.D., F.R.S., ETC.

By Dr. Cullen.

Dr. Cullen read a biographical sketch of Wm. Cullen, M.D., F.R.S., author of Cullen's *Nosology*, &c., and professor of the practice of physic in the Universities of Glasgow and Edinburgh. The interest of the paper was increased by the exhibition of Cullen's diplomas, commissions, letters, manuscript lectures, and other documents and objects of interest.

The *President* expressed, on behalf of the members present, the pleasure and instruction which Dr. Cullen had given to the meeting by his paper and demonstration.

Meeting III.—6th November, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—TUBERCULAR DISEASE OF RIGHT KIDNEY; NEPHRECTOMY.

By Dr. Jas. A. Adams.

E. A., æt. 28, hospital nurse, was admitted to my wards on 11th June, 1896, complaining of severe pain and frequency of micturition. The condition was first troublesome five years ago, when it yielded to medicinal treatment, and only lasted a fortnight. About two years ago the same symptoms returned, and have been gradually getting worse since that date.

The frequency of micturition was very troublesome, patient having to micturate every three-quarters of an hour. There was never more than 3 oz. of urine passed at one time, and never any incontinence. The amount of urine was not greater than usual; it always contained albumen. The frequency was about the same day and night.

There was pain of a dull character in the urethra, aggravated while the urine was passing, and becoming less as the bladder was emptied. The urine, according to the patient's statement, was very muddy, and often contained clotted blood at the end of the act of micturition.

About two years ago patient had a bad attack of enteric

fever, was four months in bed, and during that time the present trouble continued. She was admitted to the Western Infirmary, where the bladder was washed out, the pain being intense on passing the catheter. She improved greatly after the bladder had been washed out several times. There has never been pain in the back or loins.

Patient was transferred to the surgical side of the Western Infirmary, and an exploratory incision was made in the right lumbar region; but there was nothing abnormal detected. The urethra was then dilated and the bladder examined with the cystoscope, but nothing definite was discovered. The patient was then dismissed from the hospital, and was ultimately sent to me by Dr. John Ritchie in the hope that something could yet be done for her. The condition above described had become much aggravated, and her consequent misery was very great.

Menstruation was normal, but the bladder symptoms became worse at each menstrual period.

On examination of the abdomen there was a slight fulness in the right lumbar region, and a cicatrix, the result of the first operation. A movable tumour, painful on pressure, was also evident in this situation. Marked pain was elicited by pressure over the bladder; there was no enlargement of the spleen or liver.

The urine averaged 54 oz. daily, with a specific gravity of 1015. It contained a thick, white, muddy sediment, but no tubercle bacilli could be detected. The temperature fluctuated between 100° F. and 103° F.

On 10th July Dr. Newman examined the bladder with the cystoscope, and reported that the mucous membrane was hypertrophied and presented varicose veins.

On 21st July I made a median incision in the anterior abdominal wall, and examined both kidneys. The left was normal, but the right was enlarged and nodular. The median incision was then closed, and the diseased kidney removed by the usual lumbar incision. A drainage-tube was left in the wound for three days. Great sickness followed the operation, and persisted for five days. Temperature rose to 101° F. on 22nd July and then subsided to 99° F.

Within the first twenty-four hours, 27 oz. of urine were removed by catheter, and on account of the persistent sickness most of the nourishment was given *per rectum*. On 23rd July, 27½ oz. of urine were passed, and the quantity gradually rose day by day. The patient was sent to the Convalescent Home on 2nd October and is now moving actively about.

The urine is now clear although it still contains albumen, and the bladder symptoms have improved.

The portion of ureter removed with the kidney was tubercular, and I regret I did not adopt some local treatment, such as washing out the bladder through the ureter, and injecting some form of iodoform emulsion.

Mr. H. E. Clark thought the result of the operation was so far satisfactory; but he feared that, in spite of the negative results of cystoscopic examination, there was tubercular infection of the lower urinary passages, an inference suggested by the persistence of some undue frequency of micturition. He doubted, therefore, whether a completely favourable issue could be anticipated. It was necessary, also, to keep in mind the possibility of a general infection arising from some tubercular focus left behind after excision of the kidney. He had known a good immediate result of the operation, and the patient die eighteen months later of phthisis pulmonalis.

Dr. Adams recognised the possibilities suggested by Mr. Clark. In answer to the President, he stated that he preferred to remove the kidney by an incision in the loin rather than through the anterior incision, because he believed there was special risk of infecting the peritoneum in removing a tubercular kidney. Hence he shrank from opening the peritoneal cavity in such cases.

Mr. Clark expressed his agreement with this statement.

II.—ABDOMINAL SECTION FOR ACUTE INTESTINAL OBSTRUCTION THE RESULT OF TUBERCULAR PERITONITIS; RECOVERY.

BY DR. JAS. A. ADAMS.

J. H., a threadworker, aged 14 years, was admitted in a comatose condition to my wards on 19th March, with symptoms of acute intestinal obstruction of three days' duration. Patient was never a strong girl, and for several months before admission complained of general weakness, with loss of flesh and appetite. She had a cough with purulent expectoration.

On the night of the 16th March she was suddenly seized with acute pain in the abdomen, and violent vomiting, accompanied by great thirst. Patient always had a tendency to constipation, but after the onset of the acute symptoms it became absolute and no flatus passed. No blood had escaped *per rectum*.

The vomited matter was markedly stercoraceous and

offensive, while the temperature was 98·4° F., and the pulse could hardly be detected. She was unconscious and much collapsed.

There was no general abdominal distention, but round the umbilicus there were distended coils of intestine visible through the abdominal wall. No peristalsis existed, and the abdomen was not markedly tender at the region of the appendix or elsewhere. Rectal examination was negative. With considerable hesitation I determined to operate. After a drachm of chloroform had been used the anæsthetic was stopped and the operation finished without any expression of pain from the patient. Two hypodermic injections of ether were administered, as the girl showed alarming symptoms of collapse while on the operating table.

A median incision discovered an advanced tubercular condition affecting the lymphatic glands and peritoneum. A band completely occluded the small intestine about its middle, and the entire small intestine had to be unravelled, necessitating the rupture of three tubercular abscesses. These were mopped out with artificial sponges and dusted with iodoform, but the peritoneal cavity was not flushed. The wound was closed with deep and superficial interrupted catgut stitches, and a long splint applied.

On the night of the operation the temperature rose to 100° F., but fell next day, and remained normal for two days. Sickness was troublesome, but yielded to a sinapism over the epigastrium.

For the first twenty-four hours she was fed entirely by the rectum, but afterwards small and frequent quantities of milk were given by the mouth. The bowels moved freely twenty-four hours after the operation and continued to act daily.

On 22nd March the temperature rose to 104° F., and in consequence the wound was examined, but it was found to be aseptic, and healed by first intention.

No abdominal distention occurred, but slight pain was complained of in the hypogastric region.

The lungs showed some dulness on percussion at the apices, where also a few râles were present. The urine was normal.

The patient was sent to the Home on 19th May, and had improved greatly in appearance, having gained considerably in weight.

On her return to her own home, with its poor surroundings, she developed a very severe cough and died of phthisis pulmonalis on 26th October, about eight months after the operation.

This case is interesting as illustrating how a young patient may recover although apparently in *articulo mortis*, and as bearing out the experience of surgeons that an abdominal incision frequently arrests the progress of tubercular disease in the peritoneal cavity. We know that in tubercular disease of joints we can aid the *vis medicatrix naturæ* by clearing out and dusting with iodoform abscesses that retard the healing process; and we also know that many cases of tabes mesenterica get well by pursuing an expectant treatment. I am strongly, however, of opinion, that where tubercular peritonitis induces constipation, anorexia, and abdominal distention, an incision will enable us to make a correct diagnosis, and will facilitate the patient's recovery.

Dr. Renton thought too much credit could not be given to Dr. Adams for undertaking this operation with the patient almost *in extremis*. Success in such cases is imperilled by the use of chloroform and by time spent in vainly endeavouring to thoroughly cleanse the peritoneal cavity. If necessary, a local anæsthetic may be used to spare the pain of the incision through the skin. There are many cases of tubercular peritonitis (apart altogether from intestinal obstruction) which are benefited by abdominal section, though the difficulty of explaining this result is similar to the difficulty of explaining the disappearance of inflammatory formations and the shrinking of malignant growths after purely exploratory abdominal incisions.

Dr. Hawthorne hesitated to assent to the doctrine that abdominal incision was to be regarded as a simple form of treatment in cases of tubercular peritonitis. He believed the outlook in the majority of these cases was much better than was generally stated, and under rest in bed, appropriate feeding, and the steady use of mercurial liniment to the abdomen, he had seen a number of children recover, even to the extent of almost complete removal of the evidences of peritoneal thickening. For several years he had watched cases that had passed through Dr. Gairdner's wards, and his conviction as to the value of medicinal treatment was so strong that he could not allow some remarks that had been made to pass without indicating his dissent from teaching which would seem to advocate abdominal section almost as a matter of routine in cases of tubercular peritonitis.

Dr. Newman believed the sound position in reference to appendicitis, tubercular peritonitis, and other conditions in which abdominal section might be proposed, was that every

case must be judged on its individual merits. There was no general rule for interference, and the great responsibility and difficulty arose in selecting the cases that were suitable and the time when operation was demanded. Many cases of tubercular peritonitis and other abdominal conditions get well spontaneously, and probably many cases successfully operated on would have recovered had they been left alone. He would not encourage the opening of the abdomen in tubercular peritonitis unless in exceptional cases.

Dr. Adams, in reply, said he had never seen any evil consequences from opening the abdominal cavity. He dissented entirely from Dr. Hawthorne's position, and would expect benefit from abdominal incision in a case of tubercular peritonitis, just as incision is beneficial when an abscess exists in the neighbourhood of a tubercular joint.

III.—ABDOMINAL SECTION FOR INTUSSUSCEPTION IN AN INFANT OF FIVE MONTHS; RECOVERY.

By Dr. Barlow.

The case which I desire to bring before you to-night will be of interest, I hope, because of the typical history of the ailment and the speedy relief which followed operative interference. Agnes G., aged 5 months, was admitted into Ward 28 of the Glasgow Royal Infirmary on 13th September, 1896, at 3·30 A.M., suffering from abdominal pain and from sickness. The mother supplied the following history. The child had always been very healthy and plump. Its bowels had been moved on the day before admission. Eighteen hours before admission the child began to cry, draw up her legs, and strain, but nothing came away from the rectum. Eight hours before admission the child vomited frequently. The mother went to a chemist, who gave a "powder" to relieve the vomiting; it, however, gave no relief. Two hours later a little slime and blood passed from the bowel, and on this being repeated, the mother consulted Dr. Patrick, of Bridgeton, who recognised the condition, ordered removal to the Infirmary, and gave a note, which I received, stating that the case was one of intussusception.

When I saw the child, the pupils were slightly contracted —possibly the effect of the "powder"—there was abdominal uneasiness, and blood around the anus. On examination of the abdomen by palpation, a "sausage-like" tumour on the right of, and slightly above the level of, the umbilicus,

movable slightly in all directions, and causing discomfort on compression, was easily made out. Under deep anæsthesia the mass was again examined, and I attempted to reduce the intussusception by inflating the large intestine with hydrogen gas. As the gas was introduced the mass moved downwards and to the right, and during manipulation of the mass I was conscious of its diminishing in size by at least one half. The inflation combined with manipulation was continued for a few minutes, but the tumour remained. The abdomen was then opened in the middle line, and the affected area of gut easily found and brought near the abdominal wound. The intussusception was of the ileo-cæcal variety. Reduction was effected by gentle traction on the ileum combined with compression of the mass, but the serous surface of the invaginated portion was red and rough for a distance of 2 in., and here recent adhesions were gently broken down. The portion invaginated was thickened. The margins of the abdominal wound were brought together by a row of sutures passed through the serous layer, a second row through the divided aponeuroses, and a row through the skin. The usual dressings were applied.

There were two points noted during the operation—(1) The small space available between the umbilicus and pubes in a fat child aged 5 months; (2) that while there was distention of the small intestine generally, that part of the ileum adjoining the intussuscepted portion for a distance of a foot was empty, ribbon-like in form, and with its muscular coat in active contraction. It seemed to me that this active peristalsis, however induced, may have been the cause of the intussusception. I afterwards learned that the mother, who suckles the child, had been eating quantities of fruit on the 12th September. This may have been the intestinal irritant in the case of the child.

There is not much to tell of the history of the case after the operation. A drop of laudanum was ordered when anæsthesia passed off, and teaspoonful doses of milk were given hourly. This amount did not make the child contented, and on the day following the operation, and just before the time of my visit to hospital, the catgut stitches in the wound gave way during a spell of crying and struggling, and when I saw the patient many coils of small intestine were outside the abdominal cavity protected by a warm sponge. Chloroform was given, the intestines returned, and this time eight silkworm-gut stitches were passed through all the layers of the abdominal wall, and the edges of the wound approximated.

The mother was allowed to suckle the child, and the child appeared happy.

Two days later I gave the mother castor-oil, and by the following day there had been several evacuations from the bowels of the child.

The stitches were removed on the tenth day, and the child left hospital two days later or twelve days after operation.

Mr. H. E. Clark congratulated Dr. Barlow upon the result of the operation. He quite agreed with the practice of prompt operation as soon as the usual methods for attempting reduction of the intussusception had failed. Though he had succeeded in such cases by manipulation under chloroform, injection and insufflation were in his experience far from satisfactory. The danger of delay was great, and the recognition of this, and the confidence with which abdominal section could now be undertaken, should encourage the profession to urge incision as the treatment demanded in such cases.

Dr. Renton endorsed the position stated by Mr. Clark. He recognised the value of early diagnosis and operation, and in Dr. Barlow's case, and in several which he himself had published, every credit was due to the practitioners who saw the cases and advised operative interference. When delay was permitted there was risk of peritonitis, and this reduced the chances of success almost to the vanishing point. In more than one instance he had been impressed with the absence of anything in the general condition suggesting the serious danger of the child, and an intussusception might be present with little or no abdominal distention. He observed that Dr. Barlow used catgut in stitching the abdominal wall; this, in his experience, was not so satisfactory as silk or silkworm-gut.

Dr. James Adams advocated the application of a long splint after abdominal operations. It restrained the movements of the patient and prevented the possibility of such a misfortune as occurred in Dr. Barlow's case. Another practice which he regards as advisable in abdominal section is excision of the umbilicus, on account of the difficulty in rendering it aseptic. Dr. Adams prefers catgut to silk in suturing the abdominal wall.

The President referred to the practice of suturing the abdominal wall in layers. He preferred to use silkworm-gut sutures, and to pass them through the whole thickness of the abdominal wall. If subjected to strain, as by the movements of a restless patient or by coughing, there was less chance of the wound giving way if united by this method.

Dr. Barlow, in reply, said that he would never again suture the abdominal wall of a young child in layers; he was quite satisfied with the method he practised in re-stitching the wound. He wished to associate himself with Dr. Renton in giving every credit to Dr. Patrick, who had seen the child in private practice, and recognising the condition, had sent it to the hospital.

IV.—THREE CASES OPERATED ON FOR DISPLACEMENT OF THE KIDNEY, THE SYMPTOMS OF ONE CASE SUGGESTING RENAL CALCULUS.[1]

By Dr. Newman.

Case I.—T. L., aged 50, an ironmoulder, who was under the care of Dr. John Service, of Mossend, was admitted to the Royal Infirmary on 30th January, 1893, complaining of severe pain in the region of the left kidney, shooting thence downwards and forwards in front of the abdomen. These paroxysms of pain usually came on after exercise, and lasted for several minutes at a time, while during the six months prior to admission he almost constantly suffered from an aching pain in the left side. At the onset of the attacks of pain the urine was of a dark red colour, and contained a large quantity of blood, but gradually the quantity of blood diminished and the urine became bright red.

The patient was a very well nourished man, short in stature, weighed 14½ stones, and very stout, so that an examination of the renal region with the hand did not reveal anything; even firm pressure applied to the part did not give pain, and no increased muscular resistance could be made out. During residence in hospital the patient was kept strictly in bed, and from 30th January till 6th March he only complained of the dull aching pain; he had no paroxysmal attacks, and no hæmaturia or albuminuria. He was re-admitted on the 8th of May, 1893, having suffered from several attacks since he left the hospital in March.

On the 10th May the following note was made:—"Until the present time the symptoms all pointed to the presence of a stone in the left kidney. The pain was clearly increased by exercise, and relieved by rest, and so also was the hæmaturia. Yesterday he had an attack of renal colic and hæmaturia, and the following is a note on the condition and quantity of the urine:—

[1] These cases were operated on in the Glasgow Royal Infirmary during the summer of 1896.

1893.	Ounces of Urine.	REMARKS.
May 9, 6 P.M.,	12	Urine clear; trace of albumen; a few tube-casts. No pain. Sp. gr., 1013.
,, 10 P.M.,	4	Pale urine. Sp. gr., 1020.
,, 11 P.M.,	...	Severe paroxysm of pain in left side.
May 10, 5 A.M.,	6	Urine dark porter colour. Sp. gr., 1024. Blood abundant. Blood-casts. Pain still continues severe.
,, 8 A.M.,	18	Pale red blood-stained urine. Sp. gr., 1008. Pain gone.
,, 12 Noon,	15	Trace of blood only. Small quantity of albumen. Sp. gr., 1011.
,, 7 P.M.,	9	Clear urine. Sp. gr., 1015. No albumen. No tube-casts.

Now, the presence of blood-casts in the urine suggests the source of hæmorrhage as being in the renal substance rather than the consequence of a calculus in the pelvis of the kidney.

19th May, 1893.—The patient has remained well, and since 8 A.M. on the 10th inst. there has been no pain; and no blood, tube-casts, or albumen since 7 P.M. on the same day.

The presence of blood-casts in the urine was observed for the first time on the 10th May, and gave quite a new aspect to the hæmaturia, which prior to this time was regarded as due to the presence of a stone in the left kidney.

The patient remained well till the 1st June, when he left the ward, not having had any recurrence of pain or of hæmaturia.

Re-admitted 22nd June, 1896.—Since leaving the hospital in June, 1893, the patient has suffered more or less pain in the region of the left kidney, which is increased by exercise and relieved by rest in bed. The pain and the hæmaturia present the same characteristics as formerly, but now there is considerable tenderness on palpation at a spot midway between the crest of the ilium and the last rib on the left side. On account of the stoutness of the patient palpation fails to reveal the condition of the left kidney.

Considering that rest in bed only gave temporary relief, and that the patient was incapacitated from following his occupation by the frequency of the attacks, he was advised to submit to an operation for the purpose of ascertaining the precise condition of the left kidney, and, if possible, of relieving it permanently.

On the 29th June an incision was made down to the left kidney, when it was found to be moderately movable, displaced

upwards and forwards, and rotated on its short axis, so that the lower margin of the organ pointed forwards.

The adipose capsule was freely separated from the fibrous covering of the kidney, and a considerable portion of the loose fat removed. The fibrous capsule was then incised, stripped off the cortex for half an inch on either side of the incision, and stitched to the parietes. A large drainage-tube was inserted, and the deep parts of the wound kept open for ten days, after which it was allowed to heal.

In this case the symptoms—viz., paroxysmal renal pain increased by exercise and relieved by rest; hæmaturia; tenderness on palpation in the left renal region—all pointed to calculus in the kidney; but the presence of a few tube-casts, and traces of albumen without pus or blood, indicated that the morbid condition affected the tissue of the kidney, while the occasional appearance of blood-casts pointed to the origin of the hæmorrhage. At the operation a sufficient explanation was found. The rotation of the kidney, so that the lower margin presented forwards, must have caused the ureter and blood-vessels to be coiled round one another, and so impeded the circulation of blood. As a consequence, more or less severe passive hyperæmia was produced, and varied in degree according to the precise position occupied by the kidney at different times.

The patient reported himself on 2nd November, 1896, and stated that while occasionally he has had slight pain in the cicatrix, he has had no return of the old renal pain, nor has any blood appeared in the urine. A specimen of urine examined is free from albumen and tube-casts.

Case II.—Mrs. N., aged 44, was sent to me by Dr. James William White, Strathbungo, and was admitted to the Royal Infirmary on 31st August, 1896, complaining of more or less severe pain in the left side.

Though never robust the patient enjoyed fairly good health until the onset of the present illness, which she dates back to three years ago, when, after lifting a heavy bed, she suffered for the first time from pain in the left side. At the onset the pain was only occasionally present, and mostly when the patient was fatigued, but during the last two years it has been almost constantly present. It is always increased by work, by much walking or other exercise, also by constipation and before the menstrual periods. In these circumstances the pain is very severe, and is accompanied by sickness but never by vomiting.

The patient is not much emaciated, but the abdominal wall is lax, so that the left kidney is easily made out as an oval swelling which, while the patient is in bed, is usually situated immediately under the left costal cartilages, the hilum of the organ when the kidney is in this situation pointing downwards and outwards. The kidney can be freely moved, pushed downwards into the pelvis, upwards under the ribs, and to within an inch of the middle line. When the kidney is displaced there is a distinct flattening in the left lumbar region, and when the organ is handled a sickening sensation is experienced. The point at which the patient complains most of pain is just below the last rib on the left side, and in a vertical line drawn from a point on the iliac crest midway between its middle and the posterior superior spine. Urine normal at all times.

Recently the attacks of pain and sickness have been so severe and frequent that the patient is anxious to have an operation performed for her relief.

10th September.—Nephrorrhaphy was performed to-day, when the left kidney was found to be very freely movable. A considerable portion of the adipose capsule was removed, and the whole of it was freely separated from the kidney; the fibrous capsule was also incised and partly stripped off, and both capsules were stitched to the margins of the wound in the parietes.

The patient made a rapid recovery, and on 6th November reports herself completely relieved.

Case III.—Mrs. M., aged 31, was advised to come to the Royal Infirmary by Dr. James Lawrie, Greenock. On admission she complained of great general weakness, emaciation, and a dragging pain in the right flank which commenced six years ago. Until six months before her last confinement it had been bearable, but since then the pain has been constantly present and very severe. Lately the gastric disturbance also has been much increased. The pain is most severe at the menstrual periods, and is increased by any exercise; in character it is dragging and sickening, and is only partly relieved by rest in bed, but if she continues to remain out of bed she suffers from vomiting, gastrodynia, and headache. For many months she has been able to detect a movable swelling in the right lumbar region, and can herself move it backwards and forwards at pleasure.

A distinct movable kidney is made out on the right side, which, when the patient is at rest, is generally found under

the right costal cartilages, and the hilum points downwards and outwards. The organ can be freely moved to the middle line and easily pushed beyond it, can be pressed downwards into the pelvis and upwards under the costal margins. The point at which the patient suffers most pain is close to the normal position of the gall-bladder.

14th September, 1896.—Nephrorraphy was performed in the same way as in Case II. The patient made a rapid recovery, and is now (6th November) well.

The point of interest in Cases II and III is that, while in both there were severe sympathetic symptoms, such as sickness, dyspepsia, and pain, in neither were there any indications of direct renal disturbance such as may arise from torsion of the blood-vessels, nerves, or ureters. This may be explained by the position occupied by the kidneys. In both cases the kidney was simply thrown upwards, forwards, and inwards, so that while the vessels and ureters might thereby be considerably stretched, they were not at any time twisted round one another, nor were the ureters kinked so as to cause a transitory hydronephrosis.

Dr. Service had had under his care the first case described by Dr. Newman, and the symptoms had so distinctly suggested renal calculus that patient at one time was admitted to the Western Infirmary with a view to operation, which was, indeed, only avoided by the collapse of his resolution at the last moment. Various medicinal measures having failed to produce relief, patient at last submitted to surgical treatment, and the result has been in every respect satisfactory.

Dr. Lawrie was familiar with one of the cases of floating kidney. The patient had suffered much pain, especially during each menstrual period. This had now entirely disappeared. He referred to a case in which the undue mobility of the kidney appeared to be due to a fall, and in which attacks of pain came on when the patient lay upon his left side. In this case also operation was followed by complete relief.

Meeting IV.—27th November, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Specimens from a case of ruptured abdominal aneurysm.

By Dr. Middleton.

Dr. Middleton showed as a fresh specimen a ruptured aneurysm of the descending aorta occurring in a man, 29 years of age. The aneurysm rose from the posterior wall of the aorta just above the level of the pillars of the diaphragm, eroded several of the vertebræ, grew down into the abdomen, and burst below the diaphragm, ultimately with extensive hæmorrhage. Pain was the first and the leading symptom, and the diagnosis was obscure until shortly before death.

II.—Case of acromegaly.

By Dr. Middleton.

John M'K., æt. 29, iron turner, consulted Dr. Muir, of Monteith Row, about the middle of May, 1896, for headache and giddiness. Struck with the man's appearance, Dr. Muir sent him to me to determine whether it was a case of acromegaly. I have no hesitation in saying that it is, and the grounds on which that diagnosis is based are as follows:—

The face is long and oval; the forehead slopes backwards; the supra-orbital ridges are prominent; the nose is large; the lips are thick, but the lower lip is not everted; the chin is large, but does not protrude in front of the upper jaw. The tongue is not unduly large. The palate is highly arched. The teeth are bad.

The hands are of enormous size, and present the characters typical of acromegaly. They are enlarged in breadth more than in length. The nails present no striation; there are no nodosities on the phalanges; the palmar aspect of the fingers has a very "cushiony" feeling. The feet present similar characters.

Skiagrams of the hand and foot, taken by Dr. Faulds, show marked enlargement of the metacarpal, metatarsal, and phalangeal bones, especially, however, of the phalangeal. This enlargement is general, but affects the breadth of the bones more than their length. In some of the fingers the inter-

phalangeal joints have become obscured, apparently from the ossification of their cartilages. There are no stalactitic nodosities about the joints, no hour-glass appearance of the middle phalanges, and no evidence of central absorption in these bones, conditions which have been described and illustrated by MM. Gaston and Brouardel in a paper on acromegaly (with a skiagram) in *La Presse Médicale*, 29th July, 1896.

The thorax also is characteristic; there is rounding of the shoulders, with protrusion and enlargement of the sternum and lower ribs in front. There is also marked lordosis. In the lower dorsal region is an angular curvature, affecting two or three of the vertebræ.

In several of the finger-joints there is slight crepitation on movement. There is slight atrophy of the interossei muscles of the hands. The knee-jerks are normal. The voice cannot be said to be affected. The cardiac dulness is normal. There is neither thirst nor polyuria, and the only specimen of urine examined was free from albumen, sugar, and peptones. There are no fibrous tumours in the skin. He makes no complaint of his vision, but he says his eyes tire after reading for half an hour. Roughly tested, there is no limitation of the field of vision, and certainly no hemianopsia.

His only complaint is of headache and giddiness. The headache is flitting, sometimes vertical, sometimes occipital. These symptoms, however, have never kept him from work, and he has no feeling of any impairment of strength.

He cannot remember the time when his hands and feet were not big, as compared with those of other boys, and especially as compared with those of the other members of the family—viz., six sisters, who are all of ordinary size. He resembles his mother more than his father, she being of large build which his father is not. Photographs taken at the ages of 17 and 21 years show the enlargement of the hands and face very evidently. As acromegaly is not a congenital affection, but one that comes on generally at the period of adolescence or later, the date at which the enlargement of the limbs was first observed can almost always be determined. In this case that cannot be done, and yet I have no doubt of the diagnosis. It is quite probable that an increase in the size of the hands and feet taking place early in life and very gradually would escape notice; when first commented on it would probably be said that the boy had big bones, and the further increase in size would be regarded as the natural growth with increasing years.

III.—PATIENT WITH UNUSUALLY LARGE HANDS.

By Dr. C. O. Hawthorne.

This man was shown on account of the unusual size of his hands and feet. The hands were large both in length and breadth, but did not display any of the features of acromegaly or hypertrophic pulmonary osteo-arthropathy. The patient, who was 50 years of age, believed that his hands and feet had always been large, and there was other evidence to support this statement. Skiagrams taken by Dr. D. J. Mackintosh confirmed the view that, whilst the bones were large, there was neither disproportion nor distortion. Dr. Hawthorne submitted the case mainly as a contrast to those shown by Dr. Middleton and Dr. Edgar.

IV.—CASE OF HYPERTROPHIC PULMONARY OSTEO-ARTHROPATHY.

By Dr. Edgar.

The case which I wish to describe to you is an example of the rare disease which was at first confounded with acromegaly, but was afterwards (in 1890) diagnosed by Marie, the discoverer of acromegaly, as a distinct disease, and given by him the descriptive but rather clumsy name of hypertrophic pulmonary osteo-arthropathy. The two diseases are similar only in this, that both present enlargement of the hands and feet, and that in both there is frequently kyphosis of the vertebral column, but it does not require any very close scrutiny to detect marked differences between the two diseases.

Mrs. S., æt. 72, has never been out of Scotland, and has lived in Glasgow and its neighbourhood for the last forty-seven years. She married when 29 years of age, but has been a widow for the last thirty-six years. She has had four children, one of whom died of enteric fever; the other three are still living and healthy.

Her family history is good. Her father died at 65, from some gastric complaint; her mother at 83, from pleurisy. Her maternal grandfather and granduncle lived to the age of 96 and 97 respectively. She had four brothers, but no sisters; two of her brothers are living and well, one 75 and the other 69 years of age; of the other two, one died in infancy, and the other when a young man, of what the medical attendant termed "intermittent fever," but which was most likely enteric

fever. Several members of the family, including Mrs. S., suffered from it at the same time.

None of her people has, to her knowledge, suffered from tuberculosis or rheumatism.

Patient has always been a healthy, vigorous woman of good habits. She has not been addicted to alcoholism, and I can find no evidence of her ever having suffered from any venereal disease. The menopause was reached at the age of 39, since which time there has been no vaginal discharge of any kind. Until the onset of bronchitis eleven years ago she was remarkably free from trouble. Her only illnesses previously were what was presumably enteric fever when 21 years of age, and an attack twenty-seven years ago of erysipelas of the left ankle, which was incised, and resulted in the formation of the cicatrix seen in the photograph of the foot. At first her bronchitis troubled her only in the winter months, but for the last three years she has never been quite free from it, and has had to lie in bed for several months at a time.

She has never been troubled with rheumatism, unless an attack of pain in her left shoulder, which lasted for four or five weeks in February and March, 1896, and resulted, according to her statement, from sleeping in a damp room, might be regarded as such.

In August, 1896, Mrs. S. sent for me, complaining of pain and tenderness in the bones and joints of all four limbs, and it was then that I first noticed the enlargement of her hands and feet. I had not seen her since May, at which time I had not noticed anything remarkable about the appearance of her extremities. The patient's own statement was that, towards the end of June, she noticed that she was getting awkward in fine manipulations with her fingers. At this time and during July she observed her hands and feet enlarging, and began to complain of severe pain in them as well as in the arms and legs. Owing to my absence from home, however, she neglected sending for a medical man. During August and September the pain continued intermittently, and the hands, feet, and lower ends of legs and forearms continued to increase in size. In October the swelling remained somewhat stationary though the pain continued; but, during the course of the present month, the swelling of all the parts, with the exception of the terminal phalanges of the fingers and toes, which have become more bulbous, has steadily diminished, and the pain has almost entirely subsided. At first there was slight œdema on the dorsal surface of the right hand and left foot, which have all along been more hypertrophied than the other two extremities,

but there has not been any trace of this for the last two months.

During the course of the present year (1896) there has been a gradually increasing kyphosis of the cervical and upper dorsal vertebræ.

Patient is very weak. She can sit up and can lie on either side, but cannot assume the dorsal recumbency, nor can she move without assistance. Her face is sallow and thin, but it presents no deformity of any kind, no prognathism, no hypertrophy of the lips, tongue, ears, or jaw. The nose is thin, and does not present the "clubbing" spoken of by Godlee. The neck is scraggy, and the larynx normal. The hair of her head is scanty, especially on the vertex. There is marked kyphosis of the cervical and upper dorsal vertebræ; the lower dorsal and lumbar vertebræ are also curved with the convexity posteriorly, but with this difference that they can be straightened at will, although with some difficulty.

Except in the soles of her feet she does not perspire; these, however, are almost constantly covered with a copious secretion of sweat. Her temperature, taken morning and evening, is normal, though for a fortnight lately, during an exacerbation of her bronchitis, it varied from 97° to 98·6° F. in the morning up to 99° to 100° F. in the evening.

Patient's intelligence is above the average, and her memory is good. She has never had any headaches, and sleeps well except when troubled with her cough. Sensation is perfect in every part. There are no tremors, no paralysis, and no want of the power of co-ordination. Her speech is normal. The eyesight has been defective for the last twenty years, and there has been some deafness for the last ten years.

The heart sounds are weak, but no murmurs can be heard. The area of cardiac percussion dulness is normal. The pulse is weak, and averages 72 per minute.

There is no pain in the chest, and the breathing is not laboured. Cough is very troublesome, and is accompanied with a copious, frothy, muco-purulent spit, which has at no time been fœtid. There has never been any hæmoptysis. Except for the kyphosis of the cervical and upper dorsal vertebræ, there is no alteration in the shape of the chest. The percussion note is normal; there is none of the retro-sternal dulness which was described by Erb. There are numerous bronchitic râles all over the chest, but more especially at the upper part of the right lung posteriorly. There is no bronchophony. The sputum was very kindly examined for me by Dr. R. M. Buchanan, who has sent me the following report:—

"I have examined the specimen of expectoration from your patient, Mrs. S., collected from 6 A.M. on the 9th till 6 A.M. on the 10th of November, and measuring 10 oz. The surface is covered by a very thick layer of whitish, viscid froth. There is no separation into layers; shreddy, greenish, purulent masses being distributed in about an equal amount of slightly opaque mucous fluid. Under the microscope a large number of capsule

Photograph of right hand compared with that of patient's daughter, 12th October, 1896.

cocci are seen among other species. The bacillus of tuberculosis is not found. The sputum, I may say, has the general characters of that in acute bronchitis."

Tongue clean. Appetite poor. Occasionally some pain after food, so that patient requires to be cautious in what she eats. Constipation. No flatulence. No vomiting. Hepatic percussion dulness normal.

The *hands* are deformed and greatly hypertrophied, the enlargement being confined almost altogether to the bones. There is no œdema. The skin is not thickened, and is of a

greyish tint. On the palmar surface it is smooth and velvety to the touch, but on the dorsal surface it is normal in consistence. Within the last few weeks patches of dark pigmentation have appeared, chiefly on the dorsal surfaces of the proximal interphalangeal joints and along the ulnar edges of the hands, but also over the metacarpo-phalangeal joints and elsewhere. The terminal phalanges are entirely free from this dark pigmentation, but are instead of a pinkish tint; this tint is most marked at the distal extremities of the nails. There is no abnormality of sensation in any part of the hands.

The *fingers* are very much thickened and deformed. The terminal phalanges are distinctly bulbous and hyper-extended, but the thickest part of the fingers is at the proximal phalanges. The fingers taper rapidly from the proximal to the distal interphalangeal joints. On palpating the fingers the thickening is felt to be due apparently to hypertrophy of the bones, and this thickening is more marked at the diaphyses than at the joints. The enlargement of the fingers, as of the other parts, has markedly diminished during the last three weeks, but the terminal phalanges, while becoming distinctly more bulbous and hyper-extended, have retained the same circumferential measurements. The measurements of the middle finger of each hand on 6th October and 26th November were as follows:—

	Right Hand.		Left Hand.	
	6th Oct.	26th Nov.	6th Oct.	26th Nov.
	Ins.	Ins.	Ins.	Ins.
Circumference of first phalanx,	3⅞	3½	3⅝	3¼
,, first joint,	3⅞	3½	3½	3⅛
,, second phalanx,	3¼	3	3⅛	2¾
,, second joint,	2¾	2½	2⅝	2½
,, third phalanx,	2½	2½	2½	2½

Each hand measures 7½ in. from the wrist to the tip of the middle finger; the middle finger itself measures 4⅜ in.

The *nails* are very markedly altered. Besides having the rosy tint at their peripheral extremities, before mentioned, they are striated longitudinally, are extremely brittle, and are very much widened, as well as curved longitudinally and transversely. They bend over the tips of the fingers. These characters are now much more pronounced than at the time when the accompanying photograph (see p. 228) was taken.

At present the nails of the index and middle fingers measure each $\frac{7}{8}$ in. in width.

The *carpo-metacarpal region* of the hands has also become greatly thickened and widened, though within the last three weeks it has considerably diminished in size.

	Right Hand.		Left Hand.	
	6th Oct.	26th Nov.	6th Oct.	26th Nov.
	Ins.	Ins.	Ins.	Ins.
Circumference of hand at metacarpo-phalangeal joints of fingers, ...	$9\frac{3}{8}$	$8\frac{7}{8}$	$8\frac{7}{8}$	$8\frac{1}{2}$
Circumference of hand at metacarpo-phalangeal joint of thumb, ...	$10\frac{1}{4}$	$10\frac{1}{8}$	$9\frac{5}{8}$	$9\frac{1}{2}$

Owing to atrophy of the thenar and hypothenar eminences, the palms of the hands are flattened.

Wrist and forearm.—At the lower end of each forearm there is an abrupt enlargement due, as made out on palpation, to thickening of the lower ends of the radius and ulna. The bulging is in both directions, both antero-posteriorly and transversely.

	Right Arm.		Left Arm.	
	6th Oct.	26th Nov.	6th Oct.	26th Nov.
	Ins.	Ins.	Ins.	Ins.
Circumference of middle of arm, . . .	$8\frac{3}{8}$	$7\frac{5}{8}$	$7\frac{5}{8}$	$7\frac{1}{8}$
,, above malleoli, ...	$8\frac{3}{4}$	$8\frac{1}{4}$	$8\frac{1}{8}$	$7\frac{1}{2}$
,, below malleoli, ...	$8\frac{3}{8}$	$7\frac{3}{4}$	$7\frac{7}{8}$	$7\frac{3}{8}$

The *elbows* and *shoulders* do not seem to be changed.

The *feet.*—The changes here are much the same as in the hands. The toes are thickened, and have bulbous terminal phalanges. The nails are longitudinally striated, brittle, widened, and curved longitudinally and transversely. The nails of the two great toes are each $1\frac{1}{8}$ in. in width. These characteristics are now, as in the case of the hands, more marked than when the photograph was taken.

There is no œdema. Sensation is normal. The skin on the dorsal surfaces of the two proximal phalanges of each toe, and

along the outer and inner borders of each foot, is strongly pigmented. One or two faint patches of pigmentation are also seen on the dorsum of the tarso-metatarsal region. The soles of the feet perspire very freely.

The tarso-metatarsal region is much enlarged, though not so markedly so as in October. The ankles are also much thickened, and the hollows filled out.

Photograph of left foot, 12th October, 1896.

	Right Foot.		Left Foot.	
	6th Oct.	26th Nov.	6th Oct.	26th Nov.
	Ins.	Ins.	Ins.	Ins.
Circumference of foot at metatarso-phalangeal joints,	$11\frac{1}{4}$	$10\frac{1}{2}$	$11\frac{1}{4}$	$10\frac{1}{2}$
Circumference of foot at tarso-metatarsal joints,	$11\frac{1}{4}$	$10\frac{1}{2}$	$11\frac{3}{8}$	$10\frac{1}{2}$
,, heel,	$14\frac{3}{8}$	$13\frac{5}{8}$	$14\frac{1}{2}$	$13\frac{5}{8}$
,, ankle at level of malleoli,	12	$10\frac{3}{8}$	$12\frac{1}{2}$	$11\frac{1}{2}$
,, leg 4 in. above malleoli,	$10\frac{1}{2}$	$9\frac{7}{8}$	$10\frac{7}{8}$	10
,, leg 8 in. above malleoli,	$12\frac{1}{4}$	$10\frac{7}{8}$	$12\frac{7}{8}$	$11\frac{1}{2}$

The knee-joints are hypertrophied, and are swollen with synovial effusion. The hip-joints are apparently normal.

The bones of all four extremities, but more especially of the hands, feet, wrists, and ankles, are tender on pressure. This, however, is not so marked as before the diminution in the thickening set in. There is no creaking in the joints, and no nodosities. As regards movement, both active and passive, there is distinct limitation in the fingers and toes, and less marked limitation in the wrists and ankles. The fingers cannot be made to touch the palms, though their movement is now much freer than in October. The elbows, shoulders, knees, and hips can be flexed and extended to their full extent, but the patient states that she feels these joints slightly stiffer than normal.

Pathology.—There have been very few *post-mortem* examinations in cases of hypertrophic pulmonary osteo-arthropathy. Until there have been several more we shall necessarily remain a good deal in the dark as regards its true pathology. Those which have been made, viz., by Rauzier, Thérèse, Bamberger, and Thorburn, mainly go to prove that the essential lesion is an osteo-periostitis. Thorburn, in a *post-mortem* account of of one of his cases, reported in the *British Medical Journal* of 3rd October, 1896, says:—"The limb bones were covered with a finely-porous layer of subperiosteal bone; their compact tissue being sclerosed to a greater or less extent in different bones, and their medullary cavities encroached upon by the new bone." "The primary and essential lesion is clearly a widely-spread and very chronic osteo-periostitis, affecting ultimately most, if not all, of the bones, but commencing in the extremities, and always most marked at the distal ends of the limbs. The diaphyses are attacked rather than the epiphyseal ends of the bones. The joint lesions are doubtless secondary." He also describes cartilaginous erosions which, he says, are "clearly atrophic." In the case of Mrs. S. I had, previous to reading this report by Thorburn, made up my mind that the cause of the swelling was periostitis, and for the following reasons:—(1) The thickening of the bones, made out on palpation, could not be due to new formation of bone, because the enlargement had developed too rapidly for this to have taken place; (2) in the skiagraphs of the right hand and left foot, which Dr. Faulds had kindly taken for me, it was apparent that the bones were of normal thickness. The only conclusion that could be arrived at, therefore, was that the thickening was periosteal, that is to say, that the condition was one of

subacute periostitis, and this at once accounted for the pain and tenderness of which the patient complained.

What exactly is the cause of the osteo-periostitis has not yet been determined. Marie and the French school are of opinion that it is due to the action of toxins, the result of some lesion of the respiratory apparatus, and that these toxins have an elective action affecting chiefly the bones and joints of the extremities, in the same way as the uric acid of gout has an elective action on very similar parts. Marie fails to explain, however, why, while the pulmonary conditions, which he describes as entering into the causation of the osteo-arthropathy, are so very common, the osteo-arthropathy itself is such a rare condition. Thorburn takes some pains to prove that the affection is really a chronic tuberculosis of benign type. In my case I should find it hard to believe that such is the cause. Godlee, again, throws out the suggestion that the cause may be syphilis. With regard to this, all I can say is that I can find no evidence of my patient ever having suffered from venereal disease of any kind.

In the history of the case we are considering, besides the fact that to a long-standing chronic bronchitis there has been added a periostitis, or possibly an osteo-periostitis, causing enlargement of the hands, feet, and lower ends of both forearms and legs, it is also a point of some interest that it is secondary to this—secondary, at least, in point of time—that the various tropho-neuroses have arisen, viz., the clubbing of the fingers and toes, the striation and brittle condition of the nails, the pigmentation of the skin of the hands and feet, the sweating of the soles of the feet, &c.

Diagnosis.—With regard to diagnosis I think I am fully justified in classing the case as one of hypertrophic pulmonary osteo-arthropathy. The long-standing bronchial trouble, the changes in the nails, the clubbing of the fingers and toes, with the pink colouration of their distal phalanges, the thickening of the digits, the flattening of the thenar and hypothenar eminences, the deformity of the wrists and ankles, the palpable thickening of the bones, and the absence of head symptoms together make up a picture which I venture to think is characteristic.

There are, however, some special points in the case to which, I imagine, it is worth while to draw your attention.

1. The sex. In only three of the cases, which I have come across in my reading, has the affection occurred in the female.

2. The onset and progress. In almost all of the cases so far

reported the disease began insidiously and finally came to a standstill. There has not been, as a rule, the rapid enlargement, with pain and tenderness, which I have noted, and in only two cases have I seen a record of subsequent diminution of the swelling. There is one case, however, reported by Saundby in the *Illustrated Medical News* for 2nd March, 1889, under the heading of acromegaly, though a consideration of the report proves that it is not so, but really a case of hypertrophic pulmonary osteo-arthropathy, in which, as in the case of Mrs. S., the swelling began with pain, and reached its maximum in a few weeks. This patient died about five months after the onset, and Saundby found at the necropsy a sarcoma of the lung with "caseating pneumonia" infiltrating the neighbouring lung tissue. Unfortunately, he did not examine the bones of the limbs.

3. The velvety feel of the palmar surface of the hands. I do not find this mentioned by any observer.

4. The pigmentation. This, also, has not been noted, except in the case reported by Saundby, already quoted. He observed that the skin of the hands was discoloured with patches of yellow pigment. In my case the pigmentation is dark.

5. The shape of the fingers. Souza-Leite in the original description of hypertrophic pulmonary osteo-arthropathy states:—"The size of the fingers is specially noticeable at the last phalanx. The latter is considerably swollen and bulbous, to such an extent that both relatively and actually it is the most hypertrophied of the three." This description certainly does not correspond with the description of the fingers in my case. It is noteworthy, however, that during the last three weeks, while the other parts have been diminishing in thickness, the terminal phalanges have become more bulbous. It is the proximal phalanges, however, which are still the most hypertrophied of the three. Thorburn, in differentiating osteo-arthropathy from the Hippocratic hand of pulmonary and cardiac diseases, states that the fingers differ from the ordinary clubbed fingers in that the main enlargement is not terminal.

6. The carpo-metacarpal region. Souza-Leite says:—"It does not depart perceptibly from the dimensions or form of the normal hand beyond a little hypertrophy of the heads of the metacarpals." In my case the carpo-metacarpal region is undoubtedly greatly enlarged, though here also there has been a marked diminution within the last three weeks.

7. The situation of the kyphosis of the vertebral column. Kyphosis is not present in all cases. Marie stated, however, as one of the points of distinction between acromegaly and the

disease under consideration, that in the former the kyphosis involved the cervical and upper dorsal, whereas in the latter it involved the lumbar and lower dorsal vertebræ. In this, also, my case is an exception to the rule, if this be the rule.

That the case is not one of acromegaly will be obvious to anyone. The preceding chronic bronchial mischief, the rapid onset, the shape of the fingers and characters of the nails, the absence of hypertrophy of the soft structures of the hands and feet, the absence of hypertrophy of the ears, nose, lips, tongue, lower jaw and larynx, and the absence of headache sufficiently differentiate it from acromegaly.

Treatment.—Very little can apparently be done in the way of treatment. Godlee claims that in one case, where symptoms similar to those found in osteo-arthropathy resulted from an empyema, the swelling entirely disappeared when the empyema was cured. One case, which has been reported, was cured by antisyphilitic treatment on the supposition that it was due to syphilis. In my own case, while also treating the bronchitis, I have ventured to give iodide of potassium, not because I think the patient is syphilitic, but because of the periostitis. Whether this be the reason or whether the affection is taking its natural course, I do not know, but it is only since beginning the drug that the diminution in the swelling has occurred.

Dr. Middleton had seen Dr. Edgar's case, and had no doubt that the diagnosis was correct. The number of cases of the disease at present described was so few that individual features could not arbitrarily be insisted upon as essential to the diagnosis. Hence, whilst in some respects the present case departed from previous records—*e.g.*, the enlargement of the carpo-metacarpal region, and the presence of pigmentation of the skin—the main features of the condition were quite sufficient to establish the diagnosis. A tendency to narrow the range of a newly noted diseased condition always existed until a more extended experience showed the possible modifications. Thus, at first it was insisted upon that in acromegaly the joints were never affected, but he himself had shown a case of undoubted acromegaly with conspicuous joint affections.

V.—CASES OF CHOREA IN YOUNG WOMEN.

By Dr. A. Napier.

Case 1. J. M., æt. 17, factory hand, was admitted to the Victoria Infirmary on 29th May, 1896 (dismissed well on 2nd

July), suffering from unsteadiness of limbs and partial loss of power in right arm and leg. Has always been "nervous" and easily excited. Hands began to twitch six weeks ago, and things carried in them were often dropped; this was accompanied by swelling and pain in joints of right arm, to such a degree as to limit movement and deprive patient of power to feed herself. There was then, also, loss of power, but it is not clear whether this was due to pain or to an actual paresis, but it is noteworthy that shortly afterwards the right leg became similarly affected, and was shuffled along the floor in walking. On admission choreic movements are marked in all four limbs and in head. Menstruation regular. Walking is unsteady, and right leg is distinctly dragged. There is pain on pressure over right shoulder-joint in front; right arm can be raised to a right angle with body; higher movement causes pain. Right biceps enfeebled; grasp with right hand very feeble.

Heart.—The sounds seemed unduly loud at apex; V.S. aortic murmur.

Put on a mixture of pot. brom., pot. bicarb., and sod. salicylat., with liq. arsenicalis added in increasing doses.

Patient improved rapidly, progress towards recovery being interrupted only by an attack of tonsillitis, probably rheumatic.

Case 2. M. D., æt. 17, weaver, was admitted to the Victoria Infirmary on 9th June, 1896 (dismissed on 17th July, well).

This case was very similar to the last, but not so severe. Choreic movements began about two months before admission, and have become steadily worse. They involve right side as well as left, but are markedly worse on latter side; they can, to a certain extent, be controlled by an effort of the will.

Three weeks before admission there was a slight attack of rheumatism affecting chiefly left arm and leg. There is a V.S. murmur at apex. Treatment same as in last case. Progress interrupted by a subacute rheumatic attack lasting five days.

The next two cases to be reported were both of extremely severe type, and both patients died.

Case 3. M. D., a young woman of 21, was admitted to the Victoria Infirmary on 6th June, 1894, and died on 14th July; as the movements had begun only four days before admission, the total duration of the illness was exactly six weeks. Two years previously patient had suffered from rheumatic pains in her joints, and six months before the choreic seizure she was in hospital with scarlet fever. The various members of the family to which she belonged were markedly rheumatic.

Present illness seems to have begun suddenly, after a violent quarrel with her mother, though, as bearing on possible causation to some extent by imitation, it has to be mentioned that the daughter of her landlady, aged 19 years, took chorea while patient was in hospital.

On admission it was seen that the movements were incessant, violent, and universal, even the eyes being at times jerked upwards and to the right. The muscles of articulation were so affected that patient could not speak or give any account of her ailment; she was intelligent, however. On being asked if she had ever suffered similarly before, she shook her head; and whether she had ever had rheumatism, she nodded and held up two fingers, referring probably to her attack two years before. The left limbs were more violently convulsed than the right. The hands were constantly being put up to the muscles of the throat, and on being asked if she had pain there, she nodded. There was much difficulty in swallowing, and the jaws frequently closed spasmodically on the nozzle of the drinking-cup. Patient could not protrude the tongue, which was evidently swollen. Pain was complained of in left shoulder. Besides turning and twisting and throwing herself about in bed, patient frequently shouted aloud in an incoherent and inarticulate manner, and was altogether so noisy and violent that she was put in an isolation room, and moderate restraint had to be employed by means of the bed-sheet. At this time patient had no delusions, and was not maniacal or otherwise apparently mentally deranged, the shouting and noise being obviously as little under her control as the movements were. Temperature for first ten days was normal.

An attempt was made at first to overcome the disease by giving largish doses of antipyrin, but this drug failed us, its only effect being to bring out a copious red measly rash. Then chloral and bromide of potassium were given, and sometimes the bromide alone; while on a good many occasions chloroform had to be administered to control the noise and the muscular spasms. These sedative drugs invariably had a good effect for a time, giving rest and sleep, but on intermitting them the symptoms returned with renewed violence. The heart, examined when patient was thus asleep, was found to be in all respects normal. Feeding was a matter of some difficulty, except after a dose of chloral or bromide, when fluids and semi-solids were swallowed with comparative ease.

On 15th June, nine days after admission, patient had an ordinary dose of castor oil, which she vomited, and then passed motions and urine in bed.

During the next three days the spasms and shouting increased in violence, temperature rose to 104° F., and patient became distinctly delirious and had delusions. The head was now shaved (under chloroform) and ice applied. Two days later the temperature was subnormal.

On 20th June the following note was made:—"Muttering delirium, though patient is quieter; there is a pinched look in the face; abdominal wall retracted; no paralysis; swallowing easy; pupils dilated, left more than right, alternately contracting and expanding when exposed to light; no squint; no paralysis; *tache cérébrale* well marked; patient much quieter, makes no sound and does not speak unless irritated. At midnight pupils were found to be normal, being equal and responding to light."

21st June.—"Patient more restless again, but still slightly intelligent, saying 'yes,' 'no,' and 'thank you,' though only after prolonged and very obvious effort. Motions passed in bed."

22nd June.—"Slight paresis of right side of face; patient only semi-conscious, shouting when disturbed, but making no articulate complaints; erythematous flush on arms."

23rd June.—"Patient more noisy, but slightly intelligent; pupils, when eye is exposed, alternately dilate and contract, but are not sensitive to light."

25th June.—"Patient better; talks more sensibly; passes motions in bed; is inclined to sob after being questioned for some time."

26th June.—"Patient talks fairly coherently when roused, but soon lapses into incoherent rambling."

29th June.—"Since last note patient has been more noisy and restless; speech quite inarticulate; pupils again equal and react to light; temperature rising."

1st July.—"Patient rather quieter; moves head in an irritable way when eye is examined, and grinds her teeth. This grinding of the teeth has been a feature of the case from the first. Pupils dilated and quite insensitive to light."

2nd July.—"Temperature 105·6° this morning; pulse 156, and very feeble; slight cyanosis; pupils dilated and immobile."

3rd July.—"Patient still restless and throwing herself about in a feeble way; she is slightly conscious, and tries to say 'Maggie' when asked her name; pupils dilated; head turned to left, and very markedly arched backward."

5th July.—"Temperature fell this morning to 96·4° F., and pulse became almost imperceptible."

6th July.—"Patient rather less noisy; took a flower in her

hand from nurse and smelt it; cannot speak articulately, but tries to tell her name when asked; still shows choreic movement."

8th July.—"No arching backward of head while asleep; pupils, when first looked at, markedly contracted and equal; then, when eyelids were held open and electric lamp brought near to the eyes, there was at first no response, then pupils slowly dilated, and remained so for some seconds, afterwards contracting in *stages;* later the pupils were widely dilated, and did not contract under light."

11th July.—"Patient still subject to violent choreic movements, and very noisy; slightly intelligent; night nurse states that on being asked if she understood what was said to her, patient replied in an irritable way, 'I ken fine.'"

12th July.—"Temperature rising again—103·4° F. at 4 P.M.; respirations irregular and slow, about nine full breaths per minute; at 8 P.M. pulse irregular and rapid; respirations 40 per minute, shallow, with an occasional deep inspiration between."

13th July.—"Temperature has suddenly risen to 107° F.; pulse, 188; respiration, 60; cold sponging, &c., brought temperature down to 104·8° F. Patient died at noon, temperature rising to 108·2° F. before death, and to 108·8° F. shortly after death."

At the *post-mortem* examination absolutely no abnormality was found in any part of brain or spinal cord or in their membranes. Thoracic and abdominal organs normal, except for a few caseous glands at root of right lung. Uterus small, measuring 2 inches from external os to fundus, but otherwise normal.

Case 4. H. S., aged 18½, biscuit packer, admitted to the Victoria Infirmary on 6th July; died, 5th August, 1896; duration of illness, seven and a half weeks.

Patient is said to have been always excitable. Four years ago she was struck on the head by a hoist, and at that time had slight twitchings for a few days. Since then she has frequently complained of frontal headache. Menstruation regular.

For past two months she has suffered from rheumatic pains in arms, legs, and feet.

Twitchings began three weeks ago; her work consisted in carrying trays of biscuits from one department to another, and she found that her arms trembled so much that she dropped her tray. This continued till three days before her admission,

when the movements became worse and more wide-spread. All the limbs were violently affected, also the facial muscles and the muscles of articulation.

Sedatives were given (bromide of potassium, and the same with chloral) with the effect of producing a little sleep, but on awaking the movements were as bad as ever.

On third day after admission patient became much worse, and also quite maniacal, so that the restraining sheet had to be used. Hyoscine, injected subcutaneously, gave some relief and sleep, but had no durable influence on the condition. Feeding became difficult, and nutrient enemata had to be given.

The subsequent course of this case was much like that just described. Under the influence of various sedatives, chiefly bromide of potassium and chloral, some diminution of the movements was obtained, often lasting for a few days at a time, when swallowing became easier, and patient was fairly intelligent, though any attempt to perform any purposive movement resulted always in a series of irregular spasms; attempts even to reply to questions led only to a few jerky grimaces and occasionally to an inarticulate shout. As the patient became gradually weaker, the movements naturally became less violent, but they continued almost as frequent as ever.

During the last fortnight of her life patient became extremely exhausted; bedsores appeared on back and on arms; breathing became very rapid, and pulse varied from 120 to 140. Temperature throughout was subnormal till five days before death, when it rose to 102° F., falling to normal on day of death. For about ten days patient was almost unconscious, but a loud question roused her a little, and gave rise to a few faint but still irregular and uncontrolled movements. Patient died from exhaustion.

No *post-mortem* was allowed.

About the same time I had under my care in private a similar case which happily had a better ending.

Case 5. Miss C., aged 21, was sent home from an English school, where she was qualifying to become a teacher, suffering from chorea of a fortnight's duration. Immediately on reaching home the chorea became so violent that the services of two nurses had to be secured to help the friends to keep the patient from doing herself an injury. The movements at this time were of a very extraordinary kind; from the recumbent position, the patient threw herself, apparently without effort, across the foot of her bed with the face downwards; on another occasion, and with apparently no effort, she

threw herself entirely out of bed to the floor. This was accompanied by loud maniacal shouting, by illusions, and by delusions (the supposed presence of absent and of dead friends); she also failed to recognise her nearest relations and friends.

The illness lasted about ten weeks, and ended in complete recovery. As regards medicines, most benefit seemed to result from the administration of chloral hydrate with infusion of digitalis.

Case 6. A. W., aged 19, domestic servant, was admitted to the Victoria Infirmary, on 5th December, 1894, and dismissed on 22nd of same month. She suffered then from subacute rheumatism of a week's duration, involving hands, wrists, elbows, and knees. Temperature never rose above 102·5° F., and patient was practically well in a week after admission. There was one slight relapse. There was a short V.S. murmur, heard best in pulmonic area; and here, also, the second sound was reduplicated; persistent pain was also complained of over the præcordium.

Patient was readmitted on 30th January, 1895, suffering from slight return of pain in hands and knees. Temperature at this time, and for some days after, was normal. Choreic movements were distinctly present, but not, so far, very violent. Lungs normal. Cardiac percussion area not obviously increased; impulse wide-spread and unduly forcible; marked pulsation in epigastrium and episternal notch; carotid impulse visible. Blowing V.S. murmur heard over whole præcordium; rough A.S. murmur at apex and to inside of same. Urine non-albuminous.

About 14th January temperature began to rise, and heart's action became irregular, the beats tending to run in pairs. It is further noted that since admission patient's mental condition has been peculiar; she sometimes talks incoherently, and has distinct delusions. Choreic movements continue.

17th January.—Sharp stabbing pain complained of in præcordium and left side. No pleuritic friction, but pericardial friction audible at left margin of sternum in second and fourth intercostal spaces.

Fever then became more marked, temperature rose to about 103° F., and patient was actively delirious for some days, the choreic movements still going on, though not violently. Pericardial friction sounds became day by day louder and rougher, then became steadily feebler, till at end of January physical signs of *pericardial effusion* were noted. Pulse became very

rapid and irregular (120 to 140), and patient was becoming exhausted.

On 4th February the pericardium was tapped, and 5 oz. of fluid removed. This was followed by considerable improvement as regards circulation, pulse falling to 116, and patient being obviously much easier. Still the chorea was unabated, becoming rather more violent, and the loud outcry almost incessant. Patient became steadily weaker, less intelligent, and disposed to lie in one position, with the legs drawn up as in cases of spastic paralysis. She became much emaciated, and bedsores appeared at various points. Then, apparently as the result of the administration of chloral and digitalis, an improvement set in; choreic movements became less marked and finally ceased, while the mental condition cleared. Patient put on flesh, and ultimately made a complete recovery; she was dismissed on 2nd April, after a period of residence extending over three months.

Remarks.—The points to which attention may be directed in these histories are—

1. The gravity of the disease in its severer forms, two cases out of six having proved fatal.
2. Sex, all the patients having been women.
3. The association of rheumatic phenomena (articular, endocardial, and pericardial) or scarlet fever with this disorder.
4. The occurrence of the chorea on the same side as the preceding rheumatic affection in cases in which both ailments were slight.
5. The presence of actual mania, which in its acuteness seemed proportionate to the violence of the muscular movements.

Dr. Wallace Anderson thought it was somewhat misleading to describe these cases as adult chorea, as the patients had scarcely passed the period of adolescence. Chorea after the age of 24 or so was very uncommon, and he had only met with a single case. The *post-mortem* examination in Dr. Napier's case confirmed the statement that chorea is a functional disease. He was accustomed to teach that it depended on the instability of the nervous system in youth, as paralysis agitans resulted from the instability of old age.

Dr. Jones had seen a case very similar to the severe cases narrated by Dr. Napier. The patient was a lad, æt. 18 years, and the violent nature of the movements and the maniacal

excitement produced exhaustion and death in the course of a few days.

Dr. Middleton thought the case quoted by Dr. Wallace Anderson was an example of chronic chorea, which, once established, is likely to persist. It may be seen in hemiplegic limbs, but sometimes occurs quite apart from paralysis. As a rule, there is no history of the existence of the disease in early life. All *post-mortem* examinations hitherto reported agreed with the negative results noted in Dr. Napier's case.

Meeting V.—11th December, 1896.

The President, Dr. W. L. Reid, *in the Chair.*

ADDRESS ON SOME POINTS CONNECTED WITH THE PATHOLOGY AND TREATMENT OF DIABETES MELLITUS.

By Dr. F. W. Pavy.

Dr. Pavy, in the first part of his address, contrasted the condition of the healthy man with that of the diabetic in respect to the relationship of each to the carbohydrate elements of the diet. In the first, these elements were recognised as forming an important contribution to nutrition and vigour, whilst to the diabetic the carbohydrates brought general enfeeblement, mental debility, and the risk of certain definite and recognised dangers. Proceeding to consider the reason for this difference, Dr. Pavy remarked, that the essential point of contrast was offered by the presence of sugar in the blood of the diabetic. As long as this state exists, there are more or less marked evidences of ill health and possibilities of disaster, which altogether disappear when the condition of glycohæmia is removed. Dr. Pavy denied that grape sugar is a normal constituent of the blood, except in the extremely minute amount in which it is to be found in the tissues and fluids of the body generally, and further, insisted that this amount is in health constant and equally present in all parts of the circulation. From these considerations he argued that the carbohydrates taken as food must in the condition of health be prevented from entering the blood as carbohydrates, and this he maintained is effected by their conversion, prior to their admission

to the general circulation, partly into fat, and partly into proteid having the chemical constitution of a glucoside. This transformation of the grape sugar of the alimentary canal Dr. Pavy contended is brought about first in the intestinal villi and subsequently in the liver. When the arrangements for securing this transformation are interfered with in any way, grape sugar in its unaltered form passes into the blood-stream, and the condition of glycohæmia expresses itself in the form of glycosuria. Thus, the non-occurrence of glycosuria in health, according to Dr. Pavy, depends upon the successful working of a physiological mechanism by which the conversion of grape sugar into fat and proteid is effected. In temporary glycosuria, following the ingestion of large quantities of carbohydrates, more carbohydrate is administered than this mechanism can undertake; in the glycosuria of old age, the capacity for conversion has declined; whilst in ordinary cases of diabetes, some more distinct pathological depreciation of the sugar-transforming arrangements has occurred. The treatment of cases of diabetes, therefore, necessarily involves the removal of carbohydrates from the diet, until the natural function by which they are converted into fat and proteid is restored to its normal vigour. Abstinence from carbohydrates, leading to the disappearance of the glycosuria, is rapidly followed by improvement in the patient's nutrition, and all risk of diabetic coma and other complications ceases. Opium has some power of restoring the normal power of sugar transformation, and its alkaloid codeine has less attendant disadvantages than either morphine or opium itself. Under this dietetic and medicinal treatment an ordinary diabetic patient gains flesh in spite of the restricted diet; and sugar disappears from the urine. Dr. Pavy insisted upon the fact that many diabetic "breads" are quite unreliable, as they contain large quantities of starch, and pointed out that by toasting bread the less soluble starch is changed to the more soluble dextrine—a change which facilitates absorption of carbohydrate material from the alimentary canal—and is therefore opposed to the welfare of the diabetic. The reintroduction of carbohydrates into the diet when the patient has ceased to have sugar in his urine has to be undertaken very gradually, and is in every case somewhat of an experiment; it is called for when the patient, having improved in weight for some time, again begins to lose flesh, but without return of the glycosuria. In conclusion, Dr. Pavy referred to the acute form of diabetes met with in young adults, and expressed his suspicion, that in these cases there is not merely glycohæmia due to the breakdown of the sugar-

transforming apparatus of the alimentary canal, but that in addition the proteid of the tissues is split up, probably by the action of a ferment in the blood, and that one of the products of this chemical change is grape sugar, the proteid matter being essentially a glucoside, and thus yielding glucose as one of the products of its decomposition.

The address was delivered in the Hall of the Philosophical Society, and was listened to with great interest by a large audience of practitioners and students.

On the motion of the President, seconded by Dr. Middleton, a cordial vote of thanks to Dr. Pavy was passed with acclamation.

Meeting VI.—8th January, 1897.

The President, Dr. W. L. Reid, *in the Chair.*

I.—On the Direct Method of Examining the Interior of the Larynx by Kirstein's "Autoscope."

By Dr. Walker Downie.

Mr. President and Gentlemen,—The instrument which I desire to bring before your notice to-night is the invention of Dr. Alfred Kirstein, of Berlin. It has been called by him an autoscope, because by it the larynx itself can be seen, and not a reflected image as we get with the help of the laryngeal mirror.

At various times attempts have been made to view the interior of the larynx directly, that is, without the aid of reflecting mirrors; and Dr. Kirstein is one of those who have devoted much attention to, and displayed much ingenuity in, devising appropriate apparatus. He at first employed a metallic tube about 10 inches long. The patient was placed on his back on a table with the head dependent over the edge of the table; the epiglottis was anæsthetised with cocaine, and the tube introduced behind the epiglottis. The tube was illuminated by means of an electric lamp, and the interior of the larynx rendered visible.

In the instrument now employed the tube is replaced by a strong spatula or tongue depressor, which in the main is straight with a varying downward curve towards its laryngeal

end. The lip of this extremity is thickened, and it is notched in the middle.

Prior to its introduction a hood is attached over the proximal end of the spatula by a sliding arrangement. This hood serves to keep the lips, the teeth, and, when present, the moustache from obstructing the view. This spatula portion is fixed to the handle at right angles.

The handle is that of Caspar's electroscope. It contains a small electric lamp near its upper end, the light from which is focussed through a convex lens, and then deflected 90 degrees by a small prism. By this means we have a bright light directed along the upper surface of the spatula to illuminate the parts beyond.

In the application of the instrument the surgeon stands in front of the patient, who sits in a chair with the neck thrown slightly forwards. The instrument is connected with a battery, and when illumination is desired, the current is closed by pressure on a spring, and the lamp lit. The inventor, in describing the application of the instrument, divides it into three stages:—

1. It is used like an ordinary tongue depressor for the examination of the cavity of the mouth, the fauces, and the buccal pharynx.

2. The spatula is passed further backwards, the handle is gradually raised, and at the same time pressure in a downward and forward direction is exerted upon the base of the tongue. In this position the lower portion of the pharynx is brought into view, and the anterior surface of the epiglottis, the epiglottic ligaments, and the glosso-epiglottic fissure can be fully examined.

In the third position, that for examination of the interior of the larynx and trachea, the handle is still further raised until the upper surface of the sliding hood comes into contact with the upper incisor teeth. The teeth, however, must on no account be used as a fulcrum to increase pressure on the base of the tongue, and when artificial teeth are present they should be removed prior to the introduction of the instrument. The various changes in the position of the instrument should be made under the guidance of the eye. In this third position the central glosso-epiglottic ligament should lie in the notch of the distal end of the spatula, and it will be observed, when pressure is exerted at this point, that the epiglottis may be so elevated as to expose the laryngeal cavity for inspection.

The arytenoid prominences, the inter-arytenoid membranes,

and the posterior portions of the ary-epiglottic folds are readily seen in most cases. In tolerant subjects, the ventricular bands and vocal cords can be seen throughout the posterior half, or it may be two-thirds, of their entire length. I have not yet been able to see the anterior commissure of the cords, nor have I been able to inspect, with the instrument, the trachea to its bifurcation.

I have now used the instrument for little over twelve months, and though at first I had considerable difficulty in its manipulation, I found, as with most things, that its application became more satisfactory the more frequently I employed it. Without attempting to go into detail, I may state my conclusions very shortly regarding its usefulness, thus:—

For examining the fauces and buccal pharynx—"the first position" in its application—it is a cumbrous apparatus, and inferior to an ordinary Fränkel's depressor.

For examination of the epiglottis and the deep portion of the pharynx, it is very useful in many cases.

It chief value is in the examination of the posterior wall of the larynx—viz., the arytenoids and the inter-arytenoid membrane. On the laryngeal aspect of the inter-arytenoid membrane we have many serious lesions to deal with, which cannot be fully brought into view by means of the ordinary laryngeal mirror. By means of this instrument we can, in many cases, look directly on to this surface, not merely on to its upper border, but well down to and below the level of the vocal cords, and thus the extent of pachydermia, mammilloid growths, and ulcers, which so frequently affect this area, can be fully determined.

Irritability of the throat, and the position of the epiglottis, as in ordinary laryngoscopy, are the chief obstacles to be overcome before a satisfactory view of the parts can be obtained. The former may be greatly modified by the judicious use of cocaine applied prior to attempts at examination; and an overhanging epiglottis can be sufficiently elevated in the majority of cases by firm pressure on the base of the tongue, and through it on the glosso-epiglottic ligaments.

While it may be stated that this instrument will never supplant the laryngoscope, and that it cannot be used so freely as the laryngoscope, it will be found to be of great assistance in the examination of the inter-arytenoid area, and in the making of direct applications to that surface. This, to my mind, is of great importance in laryngeal work.

Note.—In a paper published in the *Therapeutische Monat-*

shefte, July, 1896, Dr. Kirstein states that he finds it possible to view the interior of the larynx by employing an instrument of more simple construction, in reality the essentials of the autoscope—viz., a spatula of the form described above, fixed at right angles to a straight handle. The hood is dispensed with, and there is no electric connection, so the forehead lamp or mirror must be employed.

Dr. Newman considered the instrument to be of but little practical value. At the best it displayed only the posterior aspect of the internal surface of the larynx, which could be already easily seen with the laryngoscope. The chief difficulties in connection with the inspection of, and operations on, the larynx were associated with the anterior part of the organ, where the autoscope gave no assistance. Some such instrument was introduced by the late Dr. Foulis, but in practice was found to be almost valueless.

Dr. Downie, in reply, maintained that the autoscope gave a more complete view of the posterior parts of the laryngeal cavity than could be obtained with the laryngoscope, and so enabled a more correct appreciation of the extent of lesions situated in this neighbourhood to be formed.

II.—DEMONSTRATION OF GLIOMATOSIS OF THE SPINAL CORD AND SYRINGOMYELIA.

By Dr. John Love and Professor Joseph Coats.

Dr. Love introduced the subject of the demonstration by referring to various cases, recorded at different times, in which the existence of abnormal cavities in the spinal cord had been observed; he remarked upon the origin of the term syringomyelia, and showed how the definite clinical condition which it now denoted had been separated from the mere muscular atrophies; and, in conclusion, he gave a brief summary of the symptoms by which the disease is to be recognised. Dr. Love then submitted a number of microscopic slides, which he had prepared from four cases of the disease, and these were demonstrated with the projection microscope by Professor Joseph Coats. The specimens showed the two tendencies of tumour development and cavity formation at various levels of the cord; and the different appearances were explained and commented on by Dr. Coats as the slides were successively thrown upon the screen.

Dr. Alex. Robertson congratulated Dr. Love and Dr. Coats

on the success of the demonstration; he regarded the contribution as a most valuable one. Cavity formation in the central nervous system was probably not so very rare. He had seen a case some years ago in which there were numerous cavities in the brain substance, and was acquainted with other cases in which the symptoms had not been definitely those of syringomyelia, but cavity formation was found in the spinal cord.

Dr. Workman referred to the value of Malorey's method for displaying the extent of the gliomatosis by the brilliant staining it communicates to the spider-cells of the neuroglia.

Meeting VII.—22nd January, 1897.

The President, Dr. W. L. Reid, *in the Chair.*

I.—FRESH SPECIMENS.

Dr. Lindsay Steven showed the parts from a case of ruptured abdominal aneurysm. The aneurysm had arisen from the posterior aspect of the aorta, and had ruptured into the tissue behind the peritoneum.

Dr. H. E. Jones showed a number of specimens of urine from a case of paroxysmal hæmoglobinuria. The specimens illustrated the rapidity with which, even after a severe attack, the blood-colouring matter may completely disappear from the urine, whilst at the same time albuminuria persists. Other features of interest were the fact that the patient was of the female sex, and that characteristic attacks of the condition had recurred at intervals for many years.

II.—FOUR CASES OF MUSCULAR ATROPHY.

By Dr. John Lindsay Steven and Dr. T. K. Monro.

The four cases of muscular atrophy, which we desire to demonstrate to-night, are of interest from several points of view. It is unusual in general medical wards to have so many cases of this kind under treatment at the same time. With regard to diagnosis, the cases raise interesting questions as to classification and pathology. On the whole, it may be

admitted that the first two to be shown are examples of the usual form of progressive muscular atrophy associated with degenerative changes in the anterior cornua of the spinal cord. With regard to the last two, however, there is room for doubt as to whether they are to be regarded as of spinal origin. On the whole, the features they present seem rather to point to a primary affection of the muscles themselves. All of them have been subjected, for lengthened periods, to treatment by the hypodermic injection of strychnine; and although two of the patients have expressed themselves as being distinctly benefited both in general health and muscular power, it may be doubted whether actual improvement or arrest of the disease has taken place.

Case I. *Spinal Muscular Atrophy involving the Right Hand.*—Robert M., æt. 42, labourer in a finishing shop, noticed wasting in the first interosseous space of his right hand about the end of August, 1896, and felt weakness in the same part two or three weeks later. He came to the Dispensary of the Royal Infirmary early in October, but got progressively worse, and was therefore admitted to the ward in the latter part of November. He was thereafter treated by daily hypodermic injections of strychnine, and in the course of two or three weeks he became aware that his hand had ceased to get worse as regards either strength or bulk.

So far as can be made out, the wasting is confined to the intrinsic muscles of the right hand. Wasting is conspicuous in the posterior aspect of all the interosseous spaces, and is seen to a less extent in the palm and thenar eminence, the hypothenar eminence not being obviously affected. The fingers maintain to a slight, but quite distinct, degree the attitude due to the long flexors and extensors being imperfectly opposed by the interossei and lumbricales (over-extension of metacarpo-phalangeal with flexion of interphalangeal joints). The thumb can be opposed to the second, third, and fourth digits, but not always to the fifth. Adduction, abduction, and flexion of the thumb are preserved in considerable measure. The power of grasping is much reduced. Patient has not noticed twitchings of the muscles of the hand, but fibrillary tremors are very conspicuous in the right fore-arm and upper arm (including the deltoid region), and are occasionally to be observed also about the left shoulder and upper arm. The tendon-jerks are well marked all over the body, including the affected upper limb. Ophthalmoscopic examination normal. Pupils medium and equal, contracting directly and consensually to light, and

contracting also in convergence. There is well-marked unrest of the pupil, making it difficult to appreciate any little dilatation that may be caused by stimulating the skin of the neck.

Patient is disposed to attribute his ailment to heavy work. He had erysipelas four years ago.

Case II. *Spinal Muscular Atrophy involving the Fore-arms and Hands.*—Peter P., joiner, aged 53, but in appearance much older, began to feel coldness in his right hand about fourteen months ago. Weakness set in a few weeks later. Several months afterwards, the left hand became affected, and about the same time patient began to feel his left foot or ankle weak. With regard to the hands, he noticed the loss of strength before the wasting. He does not know of any cause for his ailment. He became progressively worse until admission in December, 1896, but since then has improved a little, he thinks, under treatment by strychnine hypodermically and arsenic internally.

Weakness and wasting are manifest only in the fore-arms and hands, and are more marked on the right side. The principal muscles involved in the fore-arm are the ext. carp. radialis longior and brevior, and to a less extent the ext. com. digit., and perhaps the flex. carpi ulnaris. The supinator longus, the other flexors and the extensors of the elbow, the flexors of the digits, the flex. carp. radialis, palmaris longus, and ext. carp. ulnaris are preserved.

So far as the hands are concerned, the muscular loss is severe. The fingers assume the claw-like attitude on account of the long flexors and extensors being no longer opposed by the interossei and lumbricales. There is practically no power of adduction or abduction of the four inner digits. The back of the thumb lies in the plane of the back of the hand, or even behind it, so that the hand resembles that of an ape (ext. sec. internod. poll., imperfectly opposed by thenar muscles). The right thumb can be slightly adducted and abducted, but cannot be opposed to any finger of the same hand. The left thumb can be moved in greater measure to and from the hand, and can be opposed to the fore and middle fingers. There is almost no flexion or extension of the right thumb, but the distal joint of the left thumb can be flexed very well.

Patient lifts the left foot higher than the right in walking. There appears to be slight wasting in the left leg, the maximum girth of the left calf (12¼ inches) being half an inch less than that of the right.

The tendon-jerks are well-marked over the body generally, but are not so distinct in the right fore-arm as in the left. There is no ankle-clonus. The plantar reflex is preserved, but the superficial reflexes generally are not well marked.

Frequent fibrillary tremors are observed in both fore-arms and upper arms, and in the left thigh; and similar tremors occur, though not so continuously, in the right thigh, in both legs below the knees, and over both scapulæ.

Electrical irritability of some of the affected muscles is greatly reduced. Thus, no response was obtained in either hand to faradism, although frequently in these examinations of the hand the long muscles of the fore-arm contracted. Some response to galvanism was obtained from the interossei, and the quality was not always normal. Thus:—Right abductor indicis—K.C.C. with 5 ma.; A.C.C. with 1 ma. Left abductor indicis—K.C.C. with 3 ma.; A.C.C. with 12 ma.

Patient is rather unsteady when he attempts to stand with feet together and eyes shut.

The pupils are equal and somewhat small; each contracts directly and consensually to light. Ophthalmoscopic examination normal.

Nothing of importance is ascertained in connection with the patient's personal history, but a brother died with palsy of the left side, and another became insane and died in Woodilee Asylum. Patient denies having had venereal disease.

CASE III. *Widely and Irregularly Spread Muscular Atrophy, probably Myopathic (? Erb's "Juvenile" Type), with a definite Clinical History of severe crushing Injury of the Trunk.*—John B., a miner, aged 28, was admitted to Ward 7 on 19th September, 1896.

About eight years ago, he got severely crushed in the pit, the arms being squeezed against the sides of the chest, and the pressure affecting the whole length of the trunk. He was unable to work, in consequence of this accident, for five or six weeks, during which time he had a general feeling of soreness, with pain in the small of the back, and a sense of weight in both shoulders. There was no pain in the back of the neck after the accident, and the doctor said that no bones were broken.

He never recovered completely from the accident; indeed, the weight on the shoulders became worse, and after he resumed his occupation the shoulders became very painful while he worked. Nearly a year elapsed after the accident before he recognised that he could not lift his arms properly.

This weakness slowly increased, but, by changes in the nature of his occupation, he was able to work for his living until March, 1896.

The legs first began to give trouble four years ago, at a time when he was working constantly in water; he used to get wet up to the waist. Weakness in the lower limbs (causing great difficulty, for instance, in going up and down stairs), and violent and painful cramps in the thighs and calves, particularly on the right side, began at this time; and weakness increased up to the date of admission.

He strained his back sixteen or seventeen years ago by lifting too heavy a weight in play, but recovery seems to have been practically if not absolutely perfect. Since the crush, however, the back has not been right, and some time after the accident it began to get quite evidently weaker, until he became unable to raise himself after stooping.

With respect to the sense of weight in the shoulders, the power of the legs, and the power of the back, patient has improved very greatly since admission.

Patient has had pain in the sacral region, near the middle line of the back, not continuous, but lasting it may be for days at a time, and then absent for days, and sometimes so severe that he could not allow the part to be touched. This began before the weakness of the legs. He has also suffered from shooting pains about the highest portions of the iliac crests. Further, he has had momentary shooting pains along the thighs down to the knees; these are rather severe, and make him fall down on his knees. He has still pains across the "top of the hips" once in two or three days, but these are not severe. There has been no pain in the upper limb, except what has been already indicated as occurring in the shoulders. There is no ataxy on standing. Patient states that the senses of touch, temperature, and pain, have never been impaired. Smell, taste, and hearing are preserved. The stomach and bladder act normally. The bowels are somewhat costive. Influenza last year, and again in the spring of the present year, is the only illness he has had apart from the present one. It is to be noted, however, that on one or two occasions during his residence he suffered from an acute inflammation of the skin of the legs, rather suggestive of erysipelas. He has had a number of brothers and sisters, but no relative has suffered from any illness similar to his own. Alcoholic excess and venereal disease are denied.

Both fundi are normal. Pupils medium and equal. Each contracts directly and consensually to light, contracts in

convergence, and dilates reflexly. There is no nystagmus, strabismus, or diplopia. The facial, masticatory, and lingual muscles act normally. The movements of the head upon the trunk are normal. The diaphragm acts normally.

When patient stands with his arms hanging by his sides, the scapula is rotated, so that the acromion process is displaced downwards, and the lower angle inwards and upwards.

Both trapezii have disappeared, so that the form of the neck as viewed from behind is altered, the change being specially manifest when the shoulders are elevated. The rhomboids are powerful; the right rhomboideus major appears to be actually hypertrophied. The levator anguli scapulæ is well preserved on the left side, but has suffered considerably on the right side.

When patient is in the erect posture, and the upper limbs are extended horizontally, there is very little pushing power (serratus magnus) on either side. In order to push, patient inclines his body forwards, so as to get the upper limbs more into line with his trunk. When the arms are crossed in front, the lower angle of the scapula is very prominent, and a deep groove is seen behind the inner border of the bone.

The middle portion of the deltoid on either side remains strong, but the anterior and posterior parts are wasted. The part of each muscle that is preserved is very firm, and in the case of the right perhaps hypertrophied.

The supraspinatus, infraspinatus, and apparently also the teres minor are powerful on both sides. The infraspinati are hypertrophied and firm.

The subscapulares are probably active, since the humeri can be rotated inwards as well as outwards.

The latissimi dorsi are much impaired, but not lost. Their bulk is not appreciable to the eye, and there is very little of an axillary fold, either anterior or posterior, but patient is able to put his arms behind his back.

The pectoralis major is lost in great measure, but not absolutely. The wasting is pretty generally distributed throughout the muscle.

When an attempt is made to lift up patient by placing the hands under the armpits, his shoulders go up to the sides of his head (weakness of latissimi and pectorales).

The teres major is weakened on either side. Very little power remains to either triceps.

Flexion of the elbow can practically not be done against gravity.

The supinator longus and extensor carpi radialis longior

have disappeared on both sides. The wasted muscles which act on the elbow-joint are flabby.

Supination and pronation of both fore-arms are well carried out. The bulk of the fore-arms (when allowance is made for the loss of the two muscles just mentioned) and of the hands is well maintained.

Flexion of the wrists is preserved. Extension of both wrists is impaired in some degree, although the right wrist can still be extended to beyond the plane of the fore-arm, and the left still further. Lateral movements of the wrist can be carried out.

Flexion of the metacarpo-phalangeal, with extension of the interphalangeal joints (interossei and lumbricales), is preserved, but there appears to be, in the case of each hand, some weakness of the action of the long flexor on the distal phalanx. The lateral movements of the digits are impaired, though not lost.

Extension of the thumb and first two fingers is impaired, especially in the right hand.

There is slight weakness of the right extensor secundi internodii pollicis, but the left appears to be strong.

Patient is able to oppose his thumb to each of the remaining digits of the hand.

The hands are cold and livid in winter. Patient is able to write quite well, and to feed himself. The grasping power, as ascertained by the dynamometer, is — in the right hand, 16 kilos; in the left, 12 kilos.

When patient lies on his back and raises his head, the lower part of the thorax becomes flattened anteriorly, and a groove develops under each lower costal margin (weakness of lateral abdominal muscles).

The gait has not much of a waddling character now. Patient walks with his feet sufficiently close together. Lordosis is the principal thing noticed as he walks, and this deformity becomes still more striking when he rises from sitting. He says his right foot tends to drag, so that the toes are readily caught by any obstacle, and he is apt to fall on his knees, but no high stepping is noticed as he walks.

Formerly he required to put his hands on his knees to enable him to rise from sitting, but after a fortnight's residence in hospital this ceased to be necessary.

Abduction of the left thigh is carried out well; of the right not so well, the body swinging far over to the left. There is wasting of the left buttock, which is flattened and soft, whilst the right is firm and of normal shape. The wasting appears

to be chiefly of the gluteus maximus. On the other hand, the right thigh is softer and thinner than the left.

Circumduction of the thigh is preserved on the left side, but not so fully on the right.

Flexion of the left hip is strong; of the right not so strong.

Extension of either hip is preserved, and the thighs can be crossed.

The knees can be flexed and extended.

The calf muscles, especially on the right side, are large and powerful, probably hypertrophied. The maximum girth of the right calf is 15 inches, and of the left, 14 inches. Patient easily stands on tiptoe.

The left ankle can be flexed and extended, but flexion of the ankle is almost impossible on the right side. The right anterior tibial muscles are less bulky than the left.

The toes can be flexed and extended.

The plantar, abdominal, epigastric, and cremasteric reflexes are obtainable. The knee-jerk is greatly reduced, but has been obtained since admission by making patient lie on his back with the sole of the foot on the bed.

No fibrillary tremors have been observed.

The senses of touch, pain, and temperature are normal.

Nothing abnormal has been detected in the heart, lungs, or kidneys. The temperature has been normal or subnormal throughout, and the weight has remained nearly constant (about 9½ st.).

A scaly patch is present over the left tibia below the patella (? psoriasis). Patient suspects it was there before he was injured.

Electrical investigations of the affected muscles (by Dr. George M'Intyre) have shown a quantitative diminution of excitability to both galvanism and faradism, but no qualitative changes.

The treatment has been by electricity, and by tonics internally, and latterly by strychnine hypodermically.

Patient is thoroughly satisfied, and so are others who have observed him, that he has distinctly improved since his admission. So far as muscular power is concerned, however, this is only in the sense that he can now do things that he could not do before; there is no evidence as yet that lost muscular tissue has been restored.

The history of the preceding accident, the pains, the isolation of the case in patient's family, and perhaps it may be added the age at which the disease commenced, might suggest the

presence of some chronic lesion in the spinal cord. On the other hand, the wide-spread and irregularly distributed muscular atrophy; the weakness and wasting of the latissimi and pectorales, in association with the great strength and size, amounting even to hypertrophy, of the infraspinati and calf muscles; the severity of the affection in the girdles and proximal segments of the limbs with the relative immunity of the distal portions; the quantitative diminution of electrical irritability without any qualitative change; the great diminution of the tendon reflexes; the absence of fibrillary tremors; and the normal condition of sensation (except as regards the pains described), of the sphincters, eyes, and internal organs, make a tolerably accurate picture of a case in which structural changes are confined to the muscles themselves.

Whilst it is true that the different forms of muscular dystrophy run into one another, four principal types have been recognised: pseudo-hypertrophic (Duchenne), hereditary (Leyden), juvenile (Erb), and infantile (Duchenne) or facio-scapulo-humeral (Landouzy and Déjérine). The pseudo-hypertrophic and infantile forms commence, in characteristic cases, in childhood, and are associated, the former with pseudo-hypertrophy, and the latter with involvement of the face. In the case now under consideration, the face is normal, and any hypertrophy that is present appears to be true and not false, for the muscles that are specially large are also powerful. Leyden's hereditary type begins in the lower limbs and sacral region, whereas in the present case the lower limbs did not suffer till some years after the affection had invaded the upper limbs or shoulder girdles.

Probably, therefore, this case should be regarded as belonging to the "juvenile" type. The age is quite consistent with this view.

A few other points may be noticed. Pains are a rare feature of the disease. The disease is generally slowly progressive, but sometimes becomes stationary, and a certain degree of improvement, though exceptional, has been repeatedly observed. It is certainly interesting to watch the agility with which this patient, with his wasted muscles, can rise from the recumbent, sitting, or kneeling posture. It is noteworthy also that he has got over the necessity for putting his hands on his knees to enable him to rise from sitting, and, further, that this habit seems to have been acquired in adult life. Finally, it is of interest that of a number of brothers and sisters, he alone suffers from this disease.

Case IV. *Pronounced Muscular Atrophy of very Limited Distribution.*—Maggie L., aged 18, employed latterly in a thread work, was admitted on the 29th December, 1896, complaining of inability to raise her right arm completely. Two years ago, her mistress remarked to her that her right shoulder-blade stuck out too far; but patient dates her illness as far back only as the beginning of May, 1896, when, after carrying a heavy chest for a considerable distance, she felt pain in the affected limb from the top of the shoulder to the elbow. She is still liable to frequent soreness in the same parts. Difficulty in performing some parts of her work in the thread factory, and in doing up her back hair, has been present since about the time mentioned, and got worse up to the time of admission. The treatment has been by arsenic and bitters, and from the 5th January, 1897, by strychnine hypodermically. Patient thinks (11th February) she has been improving during the last ten days.

She is disposed to attribute her ailment to the carrying of the heavy weight, and there is nothing in her personal history to suggest any other cause. Her parents and her three brothers and five sisters are all alive and well. A brother and sister are older than she. The eldest of the family is 23, and the youngest 6. No relative has any complaint similar to that from which patient suffers.

The disease appears to be confined to a very few muscles. The right trapezius seems to be entirely absent, and the right serratus magnus has suffered considerably. Patient retains a good deal of pushing power (serratus magnus) on the right side, but when she pushes, the inner border of the right scapula projects far backwards, so as to give rise to a deep vertical groove. There is room for a slight suspicion that when she pushes with the left hand the inner border of the left scapula projects a little further than it ought to do. The sterno-mastoid, latissimus, rhomboid, levator anguli scapulæ, pectoralis, deltoid, supraspinatus, infraspinatus, teres minor, teres major, and subscapularis all act in a normal manner.

The rhomboids on the right (affected) side respond readily to a tap with the finger; those of the left side do not. No fibrillary tremors are seen. The pupils are large, and respond readily to light. Ophthalmoscopic examination reveals normal conditions.

Dr. Alex. Robertson regarded the first two cases as undoubtedly cases of progressive muscular atrophy due to the usual degenerative changes in the anterior cornua of the spinal

cord. Concerning the other cases he would hesitate to pronounce a confident opinion without opportunity for more detailed examination. But, subject to this qualification, he was inclined to think that the girl's case was possibly to be placed in the group of cases known as neurotic atrophies, the muscular wasting being the consequence of injury to some limited strand of nerve fibres. Similarly, a superficial examination of the third case influenced his mind in the direction rather of an idiopathic myopathy than of an atrophy depending on a spinal lesion. In this connection he directed attention to the bulkiness of the calves and of the infraspinati muscles, and suggested that this might be due to pseudo-hypertrophic changes.

Dr. Hawthorne thought the two cases first shown were almost certainly cases of progressive muscular atrophy, though the purely unilateral distribution of the atrophy in the younger man did, in his mind, raise a certain doubt about the diagnosis, and the longer such a distribution persisted the more grave would such doubt become. He presumed that lead poisoning could be excluded, for it had been pointed out by Gowers that the toxic effects of lead sometimes exactly corresponded to the manifestations of progressive muscular atrophy. The treatment here pursued he had tried in several cases, and though he had never seen anything like brilliant results, the patients had as a rule regarded themselves as benefited. Of course, it was necessary to remember that strychnine, being a powerful tonic, improved the sense of general well-being, and also that progressive muscular atrophy did in some cases become arrested as a normal event. The pupils in both of the cases did not appear to be abnormal, and he would be glad to hear of any observations on this point, it having been remarked by Hughlings Jackson, that in cases where the atrophy was of the lower-arm type the pupil might be contracted in consequence of the lesion being at the level of the second dorsal nerve, and so having an opportunity of involving the fibres which pass through the root of that nerve on their way to supply the dilator iridis muscle. He had seen two or three cases in which the onset of a wide-spread atrophy appeared to be determined by a local injury, and thus was much interested in the suggestions made in connection with the last two cases.

Dr. T. K. Monro agreed with Dr. Robertson with regard to the fact of bulkiness of the calves and scapular muscles in the third case, but as there was no evidence of weakness of these muscles, he questioned the suggestion that this might be due

to pseudo-hypertrophy. The age of the patient was certainly late for pseudo-hypertrophic paralysis, or for any other idiopathic muscular dystrophy, and there was no family history of any similar condition. The injury might possibly be the cause in some sense of that term, but if the injury had damaged the spinal cord it was very difficult to understand how its effects had been limited to the motor elements. In the girl's case he admitted he was in a state of uncertainty, and perhaps the disease was not yet sufficiently advanced in its distribution to justify an opinion in favour of its pathology as myopathic on the one hand, or spinal on the other. There was, however, something in the appearance of the face which reminded him of illustrations of the "myopathic face" described in connection with one form of idiopathic muscular atrophy. The pupils in all the cases displayed nothing abnormal.

III.—SPECIMENS OF FACIAL NERVE FROM A CASE OF DOUBLE FACIAL PARALYSIS.

By Dr. James Carslaw and Dr. R. M. Buchanan.

Dr. James Carslaw and Dr. R. M. Buchanan showed microscopic specimens from the facial and auditory nerves, and from the brain, of a patient with bilateral facial paralysis who had formerly been shown to the Society by the late Dr. John H. Carslaw (see *Glasgow Medical Journal*, October, 1894, p. 300).

Dr. Carslaw sketched the clinical history of the case, the principal facts being that the patient had contracted syphilis, that along with the secondary manifestations nine months after the chancre he suddenly developed bilateral facial paralysis and some bilateral nerve deafness, that two months later he had hemiplegia, and then acute gangrenous pneumonia of which he died. The *post-mortem* examination revealed a softening in the right corpus striatum, a lobular pneumonia with gangrene, but nothing abnormal in heart or abdominal viscera. There was no lesion in either petrous bone, but microscopic examination resulted in the discovery of numerous small hæmorrhages in and under the sheaths of both the facial and both the auditory nerves, and also in the substance of those nerves. There were similar hæmorrhages in the membranous cochlea, and the facial nerve was degenerated. The examination of the brain, in the softened area, revealed certain localised proliferations of cells in the external coats of the blood-vessels,

and also hæmorrhages into the perivascular spaces; and the vessels of the pia mater showed similar conditions. When the patient was shown to the Society there was considerable doubt as to whether the paralysis should be regarded as "syphilitic" or as "rheumatic." The result of the microscopic examination, showing similar lesions in both facial and auditory nerves and also in the brain, probably confirms the view that these nervous complications were really syphilitic, and that "cold" had little, if anything, to do with their etiology. The interest of this case depends on the rarity of opportunities for pathological examination, for though nervous complications are not so very uncommon in the secondary stage of syphilis, they are very seldom fatal.

Dr. R. M. Buchanan said that the lesions in the central nervous system in the secondary stage of syphilis were still requiring much investigation. The pathology of such conditions, as they presented themselves in Dr. Carslaw's case, was only vaguely alluded to in the literature of the subject, and was not substantiated by any records of accurate observations. The subject was, however, attracting much attention. At a discussion on "The Affections of the Nervous System occurring in the Early (Secondary) Stages of Syphilis," held by the Royal Medical and Chirurgical Society in March, 1895, Mr. Jonathan Hutchison showed some illustrations of the microscopic appearances of the spinal cord in acute paraplegia, which he had taken from an account of a case published by M. Lamy, of Paris. There was no departure from the normal visible to the naked eye. "The stress of the disease had fallen on the perivascular spaces of the vessels, especially the veins." At the same meeting Dr. Mott referred to another case of paraplegia, which exhibited apparently similar conditions —"a diffuse small cell infiltration of the perivascular spaces." In Dr. Carslaw's case, lesions of a similar nature, with the addition of hæmorrhage, appear in the central nervous system (brain and membranes), whilst extensive hæmorrhage only is found in the nerves implicated (facial and auditory). In regard to the cerebral softening, one can only hazard the view that it was due to the obstruction of a vessel consequent on the perivascular changes alluded to, as there was no apparent degenerative change in the internal coat of the vessels to account for it.

Dr. Alex. Robertson had seen a case of bilateral facial paralysis due to double otitis media, but had never met with such a condition as the result of syphilis.

Dr. Lindsay Steven remarked that the appearance of cellular collections round the vessels in the brain, as shown in one of the sections, could not be regarded as in any sense specific. Such lesions had been described by Coats, Middleton, and other observers, in many affections characterised by rapid development and associated with delirium; and in a case of hydrophobia from his own wards, at present being investigated by Dr. W. K. Hunter, similar appearances had been detected in the spinal cord.

Dr. R. M. Buchanan quite agreed with Dr. Steven's remark; in the present case the appearances described were not limited to the brain tissue, they were found also in the tissue of the dura mater.

IV.—CASE OF CONGENITAL HEART DISEASE, WITH LATE DEVELOPMENT OF CYANOSIS.

By Dr. W. G. Dun and Dr. Lindsay Steven.

The patient at his death was 4 years of age. Death took place suddenly, the boy becoming convulsed. At his birth he was a well-formed healthy-looking child. When 18 months old he had measles. The attack was quite an ordinary one, and no cardiac lesion was then observed. Six months later he had an attack of jaundice, apparently catarrhal. About a year before his death his mother noticed a slight blueness of the boy's face. Four months before his death, when Dr. Dun was called to see him, there was pronounced lividity of the face and ears, such as at once to suggest the likelihood of a cardiac lesion. The fingers and toes were also livid, and later the ends of the fingers were observed to be enlarged. The boy was very easily fatigued, and in walking stooped forward, with his hands fixed on his thighs. He was subject to paroxysmal attacks of dyspnœa, the most severe attacks being nocturnal.

On examining the front of the chest no prominence of the precordial area was observed, nor any excessive cardiac movement. The apex beat was slightly displaced downwards and to the left. The area of cardiac dulness was increased, mainly to the right, where it extended an inch to the right of the sternal border. There was also some elevation of the upper border. On auscultation a loud systolic murmur was heard all over the cardiac area, but with most distinctness at the base to the left of the sternum. There was no thrill.

The diagnosis was stenosis of the orifice of the pulmonary

artery, with probably a patent foramen ovale, or an opening in the ventricular septum. The lesions were thought to be congenital.

Dr. Dun discussed the case, and referred particularly to two points—(1) the late occurrence of cyanosis, and (2) the probable duration of life in such cases.

Dr. Lindsay Steven had seen the boy once, during life, in consultation with Dr. Dun, and he quite agreed with the diagnosis as formulated by him. The cyanosis was of the most typical and characteristic kind, fully justifying the use of the term "*morbus cæruleus*." He had performed the *post-mortem* examination, and obtained the specimen now shown to the Society. The heart is considerably enlarged, the enlargement being almost entirely due to hypertrophy, with moderate dilatation of the right ventricle. The orifice of the pulmonary artery is very much contracted, due to coalescence of the semilunar cusps, so that it passes with difficulty a fine surgical probe. There is no deficiency of the ventricular septum, the two ventricles being entirely separated from one another. The right auricle is much dilated, and the foramen ovale is patent, but at the same time more than half closed, so that no great admixture of blood could have thus taken place. The ductus arteriosus is entirely closed, being converted into a fibrous cord, a slight depression being visible where it had opened into the aorta. From this it is clear that the lesion of the pulmonary curtains must have originated at a comparatively late period of intra-uterine life. From the unusually late development of the cyanosis, it is also clear that the lesion of the pulmonary valves must have been a progressive one, stenosis slowly becoming more pronounced during the first three years of life. As regards the causation of the cyanosis, the phenomena observed in this case lend support to the view advanced by Morgagni and Peacock that the lividity is due not so much to actual admixture of oxygenated and venous blood by direct communication through imperfect septa, as to "stasis of blood in capillaries dilated by long-standing congestion, aided by imperfect aëration of the whole mass of the circulating fluid."

Meeting VIII.—5th February, 1897.

Professor M'Call Anderson, M.D., *in the Chair.*

I.—Patient with Ectropium affecting both Eyes.

By Dr. Ernest Thomson.

Dr. Ernest Thomson showed a patient, a female, about 60 years of age, but looking older, who suffered from ectropium of both lids of the right eye, and of the lower lid of the left eye. The right eyeball was not atrophied, and one of the most interesting features of the case, which was of many years' duration, was the behaviour of the corneal epithelium. This had been accustomed regularly to proliferate and dry into a horny scale, which after a time was shed, the patient thus regaining a fair degree of sight after a period of complete blindness.

II.—A Case of a Large Fæcal Tumour.

By Dr. Middleton.

David L., 10 years old, was admitted to the Infirmary on account of a large tumour of the abdomen.

The abdomen as a whole is not much enlarged, and, during the fortnight he has been under observation, has presented nothing like tympanitic distension. In the situation of the tumour there is marked bulging, of somewhat irregular form, and on watching this for some time at the bedside, peristaltic movements of the intestine are occasionally visible. On applying the hand to the abdomen a hard tumour is very readily felt, occupying a large part of the lower half of the abdomen, and lying, generally, rather more to the right than to the left of the middle line. It seems to rest on the pubes, but the finger can be introduced between it and the bone, and this end of it, which is extremely well defined, appears as if it had been moulded by pressure on the bone. While the tumour is distinctly circumscribed, its upper end is somewhat less defined than its lower, owing to the former being generally overlapped by coils of intestine, which convey to the hand the impression of being loaded with pultaceous fæcal matter. It measures vertically 6 inches, and transversely rather less.

Its outline is somewhat irregular and nodular. It is free from tenderness; and it is only after prolonged examination that the boy complains of any pain. On grasping the tumour with the hands the displacement of air in the intestine in front of it often gives rise to a sensation somewhat similar to that conveyed to the fingers in subcutaneous emphysema, but not of such a fine character. On feeling it, the first impression is that it is absolutely of stony hardness; but on firm continuous pressure the mark of the fingers can be readily left on it. It can be moved from side to side to a slight extent, and repeated observations have also shown that it varies somewhat in position. The percussion note over the abdomen is tympanitic, except over the lower portion of the tumour, which is nearest the surface. The area of the gastric percussion note is increased, reaching well up into the thorax. The rectum is almost empty, and the tumour cannot be felt on digital examination.

The boy has no complaint except constipation. He has no pain in the abdomen, no sickness or vomiting, and no rise of temperature; his tongue is clean and moist. The bladder is not interfered with by the pressure of the tumour. The only symptom is obstinate constipation, and the history bears that he has suffered from this in an aggravated form from birth. Until he was about 7 years of age he practically never had a motion without purgatives or enemata, and hard masses were frequently removed in this way, but nothing ever so large as the present tumour. About the age of 7 a complete change in his habits occurred, and for about two and a half years he generally had two or three motions every day; then constipation recurred. It is not possible to say when this tumour began to be formed, but it is probably several months ago. He was in the Western Infirmary with chorea from August to October, 1896, and while there his bowels were moved daily, or nearly so, and nothing abnormal was observed.

The facts above noted, as to the examination of the abdomen, clearly indicate the fæcal nature of the tumour, and the history confirms this diagnosis. The actual site of the tumour in the intestine is not equally evident. I believe that it is in the large intestine somewhere, the weight of the tumour being quite sufficient to cause great displacement of the bowel. If the tumour were anywhere in the small intestine, it would, from its size, almost certainly have given rise to symptoms of obstruction—pain, tympanites, vomiting, &c.

The treatment adopted is massage of the abdomen, and the introduction of a tube, as far up the bowel as possible,

through which copious enemata are given. In this way several hard fæcal masses have been already removed, and the hope is entertained that, either the mass will thus be broken up and come away in fragments, or will be carried to the rectum, from which it can be scooped out by mechanical means.

I have brought this case before the Society, partly because of the comparative rarity of such large fæcal tumours, and partly because I think too little attention is given in our text-books to the occurrence of fæcal accumulations. In the *Glasgow Medical Journal* for 1894, I published an account of "Three Cases of Fæcal Tumour," two of which occurred in children, and closely resembled the case before us, differing mainly in the fact that they both had great flatulent distension of the abdomen, a condition which for a considerable time masked the tumour. Both of these cases were obstinate, months being occupied in their treatment, but the ultimate result was good, as it is likely to be here. The third case belonged to a different category, and occurred in a woman, whose chief symptom was persistent vomiting. In her, there was no localised tumour, but the flat, somewhat retracted abdomen gave such a feeling of doughiness to the hand as at once suggested fæcal accumulation. Although this diagnosis was before me, and treatment was based upon it, the patient died from the absorption of some fæcal poison, the colon being loaded in its whole extent with hardened fæces. It is the only case of the kind that has come under my own observation, but, since my book was published, several medical men have written to me telling me of similar experiences of their own. I refer to it again because the occurrence of such fæcal accumulations, and their possible fatal termination, seem too little known, and mistakes such as I made are apt to recur.

Dr. Adamson referred to cases of fæcal tumour in which abdominal section had been necessary. In such cases peritoneal adhesions had been found, with considerable hypertrophy of the muscular wall of the intestine. He would be interested to know if any evidence of similar conditions existed in the present case. On the whole, he was inclined to consider that the fæcal accumulation here was as likely to be in the small as in the large intestine.

Dr. Middleton replied that the history gave no evidence of peritonitis, and that therefore there was no reason to suspect the existence of adhesions; hypertrophy of the muscular coat of the bowel could scarcely be detected through the abdominal

wall. The absence of intestinal obstruction, of constitutional disturbance, and the partial success of enemata, he regarded as supporting the view that the fæcal mass was situated in the colon. In the two other cases he had published, the tumours were removed by the repeated use of enemata, a result which could scarcely be expected in a large, firm accumulation in the small intestine, and that experience influenced his view of the present case.

III.—RECOVERY FROM ALBUMINURIC RETINITIS.

By Dr. Hinshelwood.

Dr. Hinshelwood showed this patient, and narrated the clinical history, which commenced in the latter part of 1893. At that date the woman had an attack of nephritis, with general dropsy and uræmic phenomena. Early in 1894 her vision failed, and this was so marked that, when brought to the Infirmary, she had to be led by a friend. Examination showed double optic neuritis, with characteristic brilliant white spots in the region of each macula. In the course of three months, however, vision had so much improved that the patient could read the smallest test-types. The ophthalmoscopic appearances very gradually lessened—the neuritis subsided, and the white spots slowly faded away, so that at the end of twelve months nothing abnormal remained except a somewhat "filled in" appearance of the discs, some stippling of the macular regions, and the remains of former hæmorrhages in the periphery of each fundus. The albumen also gradually disappeared from the urine. Dr. Hinshelwood pointed out the importance of the case as bearing on the general doctrine that the prognosis in renal disease is necessarily of the worst order when albuminuric retinitis is present. Whilst this is undoubtedly true in interstitial nephritis, this, and other cases, show that a more favourable view is possible when the renal changes are mainly or entirely parenchymatous in character.

Professor M'Call Anderson assented to the general doctrine of the gravity of the prognosis in interstitial nephritis when this affection was associated with albuminuric retinitis. As tubular nephritis was a curable affection, it was reasonable to suppose that in a certain number of cases all the effects of the disease would disappear, and therefore such patients might well recover from an accompanying retinal change.

Dr. Jardine referred to a case in which, during pregnancy,

there was albuminuria with almost complete blindness, the patient subsequently recovering from the albuminuria, but with a permanent impairment of vision. Here the retinal condition improved, but was far from regaining its normal degree of functional capacity.

IV.—A CASE OF SENSORY APHASIA WITH HOMONYMOUS SECTOR-SHAPED DEFECT OF THE VISUAL FIELDS.

By Dr. Ernest Thomson.

The principal features in the case were partial letter-blindness and amnesia verbalis, with a homonymous sector-like defect in the upper right halves of the visual fields. The two former symptoms had almost disappeared in the five months which had elapsed since the onset; the defect in the fields of vision had not improved. After discussing the localising value of the symptoms, Dr. Thomson concluded, provisionally, that there had been a hæmorrhage into the white matter of the left occipital lobe, involving the lower part of the left optic radiation, and possibly also some of the connecting fibres from the cortex of both occipital lobes to the left angular region.

Dr. Hinshelwood drew attention to the fact that, whilst the patient's power of reading letters had been imperfect, she had read figures with fluency. This supported the theory that the visual memory centres were complex, and contained specific divisions, each functionally associated with a particular group of memories.

Meeting IX.—19th February, 1897.

Professor M'Call Anderson, M.D., *in the Chair.*

I.—NOTES OF AN UNUSUAL CASE OF GENERAL PARALYSIS OF THE INSANE.

By Dr. R. D. Hotchkis.

The subject that I intend bringing before you to-night needs no apology, for not only is it wrapped in much obscurity, but the disease called general paralysis of the insane is one which

every practitioner meets with sometime or other, and which it is often of the utmost practical importance to diagnose in its earliest stage. This question of diagnosis will be emphasised by the fact that it was mistaken in the case the account of which forms the basis for this paper. It was strongly suspected on the admission of the patient; but his improvement was so rapid and great that this diagnosis was thought to be mistaken, and it was only at the *post-mortem* examination that it was found after all to have been correct. A mistake like this, however, had no direct bearing on the treatment, and it is liable to occur more easily in mental diseases than in other forms on account of the purely symptomatic classification of insanity. Such a classification is necessarily very imperfect, and its imperfections are more apparent when one disease, named entirely from its symptoms and with no definite pathology, is contrasted with another, as general paralysis, which has as its basis definite pathological changes, and which is named from the bodily symptoms in conjunction with the mental ones, and also because of its progressive and almost certainly fatal character.

J. C. was admitted into the Glasgow Royal Asylum on 18th September, 1895, as a private patient.

Past History.—He has always been regarded as a simple youth, not only by his relatives, but also by his acquaintances.

Family History.—No hereditary predisposition.

History of Present Illness.—After his father's death, four years ago, he was left to carry on the business at the early age of 21, and had it not been that his sister, a capable and energetic woman, looked after both him and it, he would have come to grief long before he actually did. As it was, the strain told upon him, and for the past year he was noticed to be peculiar and eccentric both in his general conduct and in his way of transacting business. About four or five weeks ago this eccentricity became more marked, and his manner changed; he became restless and unsettled, and imagined that he was possessed of great wealth. Acting on this delusion, he entered into negotiations with tradesmen for the purchase of quite unnecessary and often absurd articles, such as ponies, carriages made of electro-plate, large quantities of clothing, &c. Being obviously insane and fast ruining his business, he was sent to Gartnavel.

Present Condition.—He is a tall, well-made young man, looking his age, which is 25, but not over it. Physical examination shows no abnormality of his abdominal and

thoracic organs; but the reaction of his pupils both to light and accommodation is deficient, and his speech is lisping. This latter is probably due to the want of his artificial teeth through the plate being broken. Both superficial and deep reflexes are present, but not exaggerated, and there is no paresis of any of the voluntary muscles. His palate is normal.

Mentally he is in a state of simple exaltation, characterised by great foolishness both of manner and speech, and he has rather a fatuous expression, which does not mirror forth clearly his various mental states and emotions. He has expansive ideas and delusions of wealth; but they are not fixed, and if reasoned with firmly he can be persuaded to disclaim them, thereby showing great facility. He also realises that he is in an asylum, and instead of being annoyed, he confesses that he is glad to have been brought here, as for some time he has had a feeling in his head that there was something wrong. The case on admission was suspected to be one of general paralysis, but this view was soon afterwards given up on account of his rapid improvement.

Progress.—Within a few days he settled down; he became calmer, talked less about himself and his affairs, and gradually gave up the idea of great wealth; but his feelings of well-being and satisfaction with himself remained. At the same time he was constantly making foolish remarks, which, along with oddities in his general behaviour, showed that the improvement was more apparent than real, and due to the routine and discipline of an institution life. His bodily health rapidly improved, and he both slept and took his food well.

In November—that is, about a month and a half after admission—it is noted that he has been steadily improving, and is now fairly well, having gained nearly two stones in weight. As his condition did not apparently change for the next ten months, it will at once be shortly described. Physically he is in excellent condition and takes plenty of exercise, chiefly walking. He takes little to do with the outdoor games, as cricket and golf, chiefly because he has never gone in for such, and is useless at them. Mentally he is distinctly weak-minded; his questions and remarks are often silly, and he is unable to follow out for long a definite train of thought. As regards his conduct, he is foolish, touchy, and vain of his appearance, as shown by his fondness for frequently changing his clothes; but he is quite able to take care of himself inside an asylum, and goes about the grounds as he pleases. One of

the lady patients pithily and accurately described him as "a soft sumph."

Such, then, was his condition for the next ten months, and the diagnosis was mild dementia in a youth who, though never very bright, was not sufficiently enfeebled to be called an imbecile. During that time there was no reason either to change or reconsider this diagnosis, as there was no appreciable change in his condition.

In September, 1896, after seeing in the newspapers an advertisement about the sale of his business, he broke down entirely. The first symptoms were restlessness, sleeplessness, and slight incoherence of speech. This in a few days passed into acute mania; he became excited, not violent but very resistive, incoherent, and with numerous delusions about diseases he was suffering from, as syphilis. It was now discovered that he had a scar on his penis, but there was no other evidence of syphilis. Potassium iodide was given without any beneficial effect. He became destructive of both clothes and furniture, degraded in habits, and gave trouble by refusing his food. This condition lasted till his death on 15th November, and the only change was that the excitement became less active and violent; but the resistiveness mentioned above became more marked, so as to be a great hindrance to proper treatment and observation. He resisted with all his strength any examination, and was only with difficulty got to take sufficient nourishment. The case was now looked upon as one of acute excitement arising in the course of prolonged mental enfeeblement, and the prognosis was considered unfavourable. This was enhanced by the development about the middle of October of a hæmatoma of the left ear, which was blistered and soon almost completely disappeared. About this time a large abscess developed on the back of the left fore-arm. It was opened, and slowly healed in spite of constant movement and his endeavours to tear off the dressings. His condition gradually got worse, and for about a week before death his temperature varied from 99° to 100°, there being no apparent cause for it except the mental excitement, as the abscess had almost healed. There were no congestive attacks, and no signs of paralysis. The emaciation was not so extreme as is usual in fatal cases from exhaustion in acute mania, but the mode of death was the same. His pulse became weak and irregular, his breathing hurried but not laboured, and the onset of death was very gradual. He recognised his sisters twelve hours before death, which took place on 15th November.

Post-mortem (thirty hours after death).—The brain and its encasings showed most of the signs found in general paralysis.

The calvarium is denser and harder than usual, and on the inner table of the parietal bones there is a distinct deposit of new bone.

The dura mater is slightly adherent to the skull-cap, and is thickened; its colour, as it lies *in situ*, is darker in its anterior half than usual. On removal, about 2 oz. of serum escaped, and there is now seen a false membrane—the so-called pachymeningitis hæmorrhagica interna of the Germans — which covers the frontal and part of the parietal lobes on the left side, going down as far as the base of the brain, and on the right side the frontal lobe alone. Its thickest part is about one-eighth of an inch, and it tapers off towards its margins. Over the anterior part of the frontal lobe it is dark in colour, and has more the consistence of jelly, whereas the other parts are fibrinous. It shows the effects of recent hæmorrhage, as part of it is blood-clot, and at the base of the brain on the left side there is distinct staining of the inner surface of the dura. This false membrane is easily removed, and underneath it is seen the pia-arachnoid, which is thickened and mottled, and has at the vertex some dull opaque fluid beneath it. The vessels of the pia are much thickened and tough, and the pia itself is distinctly adherent to the convolutions below, both in the frontal and parietal regions, and when it is removed some portions of the ridges of the convolutions are torn away.

The convolutions show some atrophy, and the layers of the grey matter are well-marked.

The ventricles are slightly enlarged, and contain an excess of fluid.

The lining membrane of the lateral ventricles is thickened, but not granular, whereas in the fourth ventricle at the posterior part of its floor it is distinctly granular, and has the appearance of frosted glass.

The cerebellum seems normal.

The large vessels and the venous sinuses also show no morbid change.

There was nothing bearing upon the case in the other organs of the body.

Microscopic sections of the motor region of the brain were prepared by my colleague, Dr. Parker. The first two, by Bevan Lewis' fresh method, show degeneration of the nerve cells, and also a few of the so-called spider cells; the latter, however, do not come out well. One section shows well-marked aneurysmal dilatation of the arterioles. This is

interesting because the earliest changes are in the vascular tissues. The arterioles of the brain and its membranes become distended and engorged, and great development takes place in their sheaths, and is accompanied by an escape of leucocytes and collections of hæmatoidin crystals. The result of this is that the muscular coat of the arterioles becomes paralysed, and therefore relaxed, which favours stasis of the blood current, aneurysmal dilatations, and rupture.

Remarks.—The most striking thing about this case is the clinical history, which might be divided into three stages—the first consisting of a state of mental exaltation, in which the patient acts and speaks extravagantly; the second being a long period of comparative well-being, insanity being shown only by facility and slight enfeeblement of mind; and the third a stage of acute resistive excitement which ended fatally. A typical case of general paralysis of the insane has also three stages—the first consisting of mental exaltation, a sense of well-being and happiness, combined with exalted delusions, and sometimes acute maniacal attacks. There are also motor signs, as fibrillary trembling of tongue, and slight incoordination of muscles of hands and legs. The second stage is characterised by great facility, with spurts of excitement, and great increase of motor signs. The third stage is literally paralysis, which has become general.

A comparison of these two histories shows that they correspond only in the first stage—that of mental exaltation with extravagant conduct. They deviate considerably in the second stage, the common element being facility, but their divergence in the third stage is so great that comparison is useless, nor indeed would it be fair to do so, because the pathological changes point more to the patient having died in the second stage than in the third. It is plain, therefore, that a case of general paralysis, like the one related, presents widely different symptoms from what is usually recognised as a typical case; in fact, so different that one not conversant with the disease could hardly believe that they had anything in common. There are, however, several varieties of general paralysis based on either special motor or sensory signs, as, for example, the peripheral form in which the disease begins either in a nerve or in the spinal cord and spreads up to the brain. Another variety, which is not common, consists in an attack of acute excitement, which passes off, and the patient is considered as recovered. He will, after a varying length of time, have another attack, which, when it passes away, will leave

definite motor signs of general paralysis. A third acute attack has been known to take place before the distinctive motor signs supervened. The diagnosis in these cases is often overlooked, being, in fact, impossible in some to make; and I think it more than probable that had not J. C. died during the acute maniacal attack, he would have shown distinct and conclusive motor signs on the subsidence of the excitement.

There is another form in which the patient does not present symptoms calling imperatively for asylum treatment, and these consist of rapid degeneration of both mind and body, the essential treatment of which is good nursing. These cases come oftener under the care of those engaged in private and hospital practice, and it was partly with the intention of ascertaining the experience of such that I decided in bringing this subject before a Society like the present. This form is not always recognised as such, especially in private practice, and it may be mistaken for alcoholism, syphilitic or paralytic insanity, and even for early senile decay. Into the differential diagnosis there is no time to enter, but I hope that those present who have come across such cases will give us the benefit of their experience.

These remarks are necessarily few, and leave untouched, although they suggest, many interesting problems, for example —the nature of the disease: whether it be an entire disease—a pathological entity—or whether it be made up of several different and distinct diseases. This question has been much disputed, and competent authorities hold opposite views. Then, again, there is the relation of the mental symptoms to the parts of the brain implicated, a problem underlying the whole pathology of mental diseases, and its solution being as yet in its infancy.

Dr. Oswald was impressed by certain features of the case which differed from those displayed in the usual form of general paralysis. Thus the patient, instead of possessing a high type of mental constitution, had always been somewhat wanting in intellectual power; his delusions had been very changeable, and it had been possible to convince him of their baselessness. Dr. Oswald considered it probable that the case was one of developmental general paralysis to which was added later an attack of syphilis. His experience was decidedly in favour of the view that general paralysis is a result of syphilis, either acquired or inherited. It was necessary to recognise that there were cases of general paralysis in which there was little or no excitement, and which usually ended in dementia.

Neither in these, nor in any other varieties, was it reasonable to expect benefit from treatment unless the disease was diagnosed at the outset, and the patient at once placed under proper care.

Professor M'Call Anderson considered it of great importance to recognise the fact that a large proportion of the cases, not only of general paralysis, but of other organic diseases of the nerve centres, had an undoubted syphilitic origin.

Dr. Marr drew attention to the characters of the false membrane found on the deep surface of the dura mater as supporting the view that such membranes are the result of repeated hæmorrhages.

II.—PARALYSIS OF THE EXTERNAL RECTUS MUSCLE OF THE RIGHT EYEBALL ENDING IN RECOVERY, AND FOLLOWED BY AN IDENTICAL EXPERIENCE ON THE OPPOSITE SIDE.

By Dr. Leslie Buchanan.

The patient was an unmarried woman, aged 30 years. Whilst in her usual good health she, without manifest cause, commenced to complain of frontal headache, giddiness, and indistinctness of vision. When seen some fifteen days after the commencement of these symptoms, she was found to have complete paralysis of the right external rectus muscle. This persisted for a time, and then gradually disappeared. Shortly afterwards, however, a similar paralysis appeared on the left side, but this was not of long duration. The bilateral distribution necessarily excluded any local orbital condition as a cause, and also the possibility of a single supra-nuclear lesion. Syphilis and rheumatism were discussed as possible etiological factors, but were negatived, both on general considerations and by the distribution and transitory duration of the paralysis. There was no evidence of spinal disease, and as the patient had remained in good health for a period of two years since the ocular symptoms disappeared, it was concluded that the case must be placed in the functional or hysterical class.

Dr. Maitland Ramsay expressed the opinion that the development of any ocular paralysis must be regarded as a danger signal, and further, that the fact of the paralysis being limited and transitory makes its significance all the more serious. A paresis of rheumatic origin is often very persistent; syphilis also produces long continued paralysis, and is apt to involve all the muscles and so cause complete ophthalmoplegia;

but in many cases of organic disease of the central nervous system a transitory paralysis of perhaps a single ocular muscle is the earliest symptom. Hence such an occurrence must demand a very guarded prognosis. Dr. Ramsay quoted a case he had had under observation for the past two years which illustrated the view he now advocated.

Professor M'Call Anderson entirely agreed with this statement, and pointed out how frequently a temporary and recurring ocular paralysis was an early symptom in progressive locomotor ataxia.

Dr. Leslie Buchanan, whilst quite admitting the general gravity of any ocular paralysis, could not but feel difficulty in believing that his patient had any organic nevous disease, considering the fact that she had now been free from all symptoms for fully two years.

III.—OBSERVATIONS ON THE USE OF ANTITOXIN IN THE TREATMENT OF DIPHTHERIA.

By Dr. Walker Downie.

It may appear somewhat late in the day to read a communication on the use of diphtheria antitoxin before this Society; but I am so strongly impressed with the importance of this subject that, after considerable experience of the action of antitoxin, I venture to occupy some of the time of this meeting in its consideration.

The history of its introduction, and the discussion to which its employment gave rise, are familiar to all of you, as it was a departure in therapeutics in which the whole profession was interested.

It is no part of my intention to-night to discuss the opinions, statements, or statistics of others; my wish is to describe very shortly my own experiences of this antitoxin, and to make some remarks thereon.

With the many serious complications which followed the injection of Koch's tuberculin fresh in my mind, I began the employment of diphtheria antitoxin with a certain degree of adverse bias; but as the evil effects following its use were shown to be infinitesimal, and as the sources from which it could be obtained became more numerous and were proved to be thoroughly reliable, I adopted it, and have since become more and more convinced of its efficacy, when employed aright.

Before speaking of its action it will be well to say a

word on the symptoms of diphtheria, in order that we may fully appreciate the effects of antitoxin on the course of the disease.

Diagnosis of Diphtheria.—Diphtheria of the respiratory tract is divided into faucial or pharyngeal, and laryngeal diphtheria.

Faucial diphtheria and acute follicular tonsillitis are frequently mistaken one for the other; but though cases do occur in which the most experienced may have doubt, yet in the majority of cases the symptoms of diphtheria are sufficiently definite to exclude doubt if they are carefully examined.

Diphtheria is characterised by asthenia. There is therefore —(1) Languor or general depression. (2) The temperature, if above normal, is only slightly raised: it is exceptional to have it in the first few days over 101° or 102° F. at most. (3) The pulse is rapid. There is a marked disproportion between the pulse and the temperature, the rapidity of the pulse being due to asthenia (cardiac weakness) and not to rise in temperature. (4) Glandular enlargement. The cervical glands at the angle of the jaw are usually enlarged and tender, and though in the majority of cases they do not tend to suppuration, their presence serves in most cases to point to the nature of the condition. (5) Freedom from pain on deglutition is the rule, and there is no difficulty in opening the mouth widely. (6) The presence of false membrane; this is tough, greyish-white, and opaque, usually occurs as a single patch, or if others are present, they are few in number. The membrane of diphtheria lies on the surface, to which it is firmly adherent. (7) Absence of knee-jerk. In the majority of cases of diphtheria there is early abolition of the knee-jerk. It can readily be tested while the patient lies in bed if the hand be placed behind and immediately above the knee and the thumb over the rectus femoris muscle, and while the knee is raised slightly from the bed the patellar ligament is gently tapped. (8) The absence of the knee-jerk is of far greater importance than albumen in the urine, which is only met with in about one-third of all cases of diphtheria, and which even in those cases occurs at irregular intervals. It is not constant throughout the illness.

In acute follicular tonsillitis there is absence of languor, the temperature is distinctly high, and the increase in the pulse-rate is in proportion to the elevation of the temperature; there is no glandular enlargement; and the white patches of secretion are numerous—there is thus safety in numbers—each

spot corresponding to a lacunar opening, and the knee-jerk is unaffected.

In laryngeal diphtheria there is languor, comparatively low temperature, a rapid pulse, and absence of knee-jerk similar to that noted in connection with the faucial affection. But there are in addition evidences of gradual and progressive stenosis of the larynx. In the early stage of interference with respiration the attacks of dyspnœa have periodical exacerbations, indicating that they are in part due at this stage to spasm of the glottis rather than to obstruction or occlusion of the larynx or trachea by masses of membrane. The point of importance in this observation is that a comparatively small exudation will occasionally excite a considerable degree of dyspnœa, and the removal of that small patch will relieve the urgent symptoms.

The chief dangers of diphtheria of the respiratory tract are twofold—(1) *Constitutional toxæmia*, the result of absorption from the affected surface, and (2) *suffocation*, from mechanical obstruction to respiration; and I wish to show how thoroughly both are averted by the exhibition of antitoxin.

Quality of Serum—When and How to Employ it.—Now, in the employment of antitoxin to combat diphtheria, I would direct your attention to four points, the observation of which, in my opinion, is essential to success—(1) Fresh serum; (2) early administration; (3) full dose; (4) repeated injection.

1. *Fresh Serum.*—Whether the antitoxin serum be hermetically sealed, or treated by the addition of a preservative, it tends to lose activity, and this occurs apparently quite apart from any change through decomposition. If it is kept for a time it becomes turbid (there may occasionally be slight cloudiness from presence of fibrin), and later it may decompose.

Freshly drawn serum should be employed when possible, or if it be supplied through an agent, that bearing the most recent date should be chosen. A serum which is clear is absolutely safe; one which has a slight cloud (of secondary fibrin) in a clear fluid and is without odour is also safe, but one which is turbid throughout is not only unsafe, but its injection may be followed by septic mischief. And the activity of such a serum as a protective or antitoxic agent is somewhat doubtful.

2. *Early Administration.*—The desire to make sure of or to check the diagnosis by bacteriological examination before announcing the disease to be diphtheria or before administering antitoxin is frequently expressed. While in no way under-

rating the value of bacteriological examination of the membrane, nor minimising the pleasure of having the presence of the Klebs-Loeffler bacillus demonstrated, I hold that delay in such a case is very wrong, and that if the various clinical features of the case have been carefully considered, and the physician as a result suspects or concludes that the condition is diphtheria, antitoxin should be given at once.

Let a portion of the membrane, if within reach, be taken by all means, but treatment should be begun before a culture could be obtained. Early administration will save much anxiety as well as many lives.

3. *Full Dose.*—The giving of a small dose was, I fear, the chief cause of failure in early cases. Accustomed as we were to give 5 or 10 minims of some watery solution as a hypodermic injection, one stood aghast at the thought of injecting subcutaneously 20 c.c. (nearly 6 drachms) of an animal fluid; and most men thought it wise to err on the safe side and begin with a much smaller quantity. Such practice tended to bring discredit on the remedy. The first injection should always be a fairly large dose. This does not necessarily imply a large quantity, as the quantity depends entirely on the potency of the serum employed. The strength of the serum is expressed in terms of its protective value as tested upon guinea-pigs injected with such a dose of toxin as would prove fatal within a given time. The various manufacturers indicate the strength of the serum on the phial; the average presently issued is in the proportion of 100 units of immunisation to the cubic centimetre. In an average case, seen in the earlier stages, 5 c.c., equal to 500 units of immunisation, is the dose to be recommended for first injection, while double that quantity may be given when symptoms—toxæmia or laryngeal obstruction—are severe.

4. *Repeated Injection.*—When marked improvement does not follow the first injection within twenty-four hours, the injection should be repeated at the end of that time, and again, if thought necessary, in forty-eight hours from first injection. In these subsequent injections the same dose as given at first may be repeated, or it may be increased or modified according to circumstances.

Administration of the Injection.—The syringe employed should hold from 5 c.c. to 10 c.c., and be made of such material and so constructed that it can be readily sterilised.

The injection should be made into a part where the subcutaneous cellular tissue is abundant, such as over the abdomen,

buttock, or thigh; and, prior to injection, the skin over the proposed seat of puncture should be well cleansed. The quantity to be injected will depend on the degree of concentration of the serum adopted. Absorption of the serum injected rapidly takes place, so that the swelling due to the fluid introduced disappears within a few hours, and usually gives no further trouble.

Favourable Results Following the Use of Diphtheria Antitoxin.—(*a*) *In Diphtheria of the Fauces and Pharynx.*—In an average case there is within twenty-four hours of the injection of a full dose some indications of its action, and the changes which occur are both constitutional and local.

The changes in the general condition consist of (1) a gradual lowering of the temperature, and if the temperature has been high, the fall will be all the more marked; (2) an improved state of the pulse; and (3) an improvement in the general comfort of the patient. Locally there is (1) a diminution in the redness and swelling of the fauces; (2) the growth of the membrane is lessened or it may be checked; and (3) the patch of exudation becomes detached at its circumference. At the end of forty-eight hours, the injection having been repeated in the interval, there is in an average case of faucial diphtheria further improvement in the general state of the patient, but the most palpable change takes place in the local conditions. The most pleasing of these is separation of the membrane; portions break away and are expectorated or swallowed, so that at the end of forty-eight hours from the first injection, little if any membrane remains, or if any portion is still present it is loosely attached and is inert. After being shed in this manner, I have not once seen it recur, as so frequently took place when the membrane was removed by force or by solvent applications.

(*b*) *In Diphtheria of the Larynx.*—The good resulting from the use of fresh antitoxin used early and in full dose in cases of laryngeal diphtheria is still more striking. I may best illustrate this by stating a case typical of several which I have seen in consultation during the past eighteen months. A well-nourished child, 2 years old, was seen by the family adviser for the first time on a Thursday morning; he diagnosed laryngeal diphtheria, and prescribed medicinal remedies. On the following day he asked me to accompany him to see the child, when I was informed that, three days before, the child had been apparently well, but that during the past two days it had suffered from increasing dyspnœa, with

croupy cough and hoarse cry, and that throughout the whole of the previous night it had been very restless. There were no patches on the fauces or pharynx, but there was marked laryngeal obstruction, with slight lividity of the lips. Temperature was 101·4° F.; pulse, 140; respirations, 42.

I had been called with the object of performing tracheotomy, but I strongly urged in the first instance the use of antitoxin, and at once administered 5 c.cm. (500 im. units) Behring antitoxin (2 P.M.). At 10 P.M. the temperature was 100·2°; pulse, 130; respiration, 40. On the following morning (Saturday, at 11 A.M.) I repeated the injection, as the child's condition was very similar to that noted on the previous night. At midnight the child had a fit of coughing, following which the respirations were quiet, and the child fell into a deep sleep which continued for ten hours. On Sunday forenoon the pulse, which had fallen to 100, was good and full, the temperature was 98·6°, and the respirations 24; from this point the child was convalescent.

I have now had eight cases to which I was called for the express purpose of opening the trachea, where in each case, even with such marked laryngeal obstruction present as to suggest operation, the need for operation was averted, and the obstructing membrane limited, loosened, and discharged most satisfactorily, by the help of antitoxin. Each of these eight cases recovered without operation.

I have had cases in which I have performed tracheotomy or intubation and injected with antitoxin, which have died, just as I have had recoveries following tracheotomy before the days of antitoxin. But the operation was done and antitoxin employed late in the course of the disease and when toxæmia was advanced, and it is in order to lessen the number of those extreme cases that I urge the early administration of antitoxin.

But even in those extreme cases antitoxin has proved most helpful in the saving of life. And in proof of this I will go beyond my own personal experience and quote, in order to contrast, the totals from the mortality tables of the Metropolitan Asylums Board for two years, where in each year the number of cases operated upon is practically identical, and the conditions, except for the absence of antitoxin in one and its employment in the other, the same. In 1894 (no antitoxin) 261 cases were operated upon, 184 of whom died, giving a mortality of 70·4 per cent. In 1895 (antitoxin used) 255 cases were operated upon, 125 of whom died, giving a mortality

of 49·4 per cent. Such statistics, in which severe and undoubted cases of diphtheria alone are dealt with, are of far greater significance than those dealing with cases of diphtheria affecting the fauces, pharynx, and larynx indiscriminately, as, apart from inclusion of other conditions through mistaken diagnosis, different epidemics, as is well known, vary much in virulence, and the results of medicinal treatment cannot well be compared.

Alleged Injurious Effects.—It is said that albuminuria and paralysis occur much more frequently as sequelæ in those cases treated with antitoxin than in those who recover without its use. Personally, this is not my experience, but if a larger number are so affected, the reason ascribed by those having large hospital experience may be the correct one—viz., that as recovery takes place in a larger proportion of serious cases now than formerly, observations on the subsequent course of severe cases, formerly precluded by death, are now possible. Again, pains in the joints resembling those of acute rheumatism have been attributed to the use of antitoxic serum; and the appearance of urticaria, beginning usually about the eighth day near the site of the puncture and spreading over the trunk and extremities, has certainly resulted from the injection. Concentration of the serum has reduced the bulk of the injection, and, as a direct result, these two ill effects are now much less common. And if the injection be given with due care and cleanliness, I know of no other complications.

Conclusion.—As may be gathered from what I have said, I strongly advocate the freer use of antitoxin in the treatment of diphtheria; and what I have said has been said with the hope of encouraging the family physician to recommend and administer it at the earliest possible moment, feeling sure that, if he employs fresh serum, and if he gives it early and in full dose, he will have no cause to regret its adoption.

Dr. Downie, in reply to a question, said that he recommended every physician likely to meet with such cases, and particularly those practising at some distance from a centre, to have dried serum always at hand. Each tube of Messrs. Burroughs & Wellcome's preparation, which keeps well, is said to contain 600 immunising units, and that quantity can be dissolved in a little over 1 drachm of water. The water, sterilised by being boiled, must be absolutely cold before the crystals are added,

otherwise coagulation will take place. The use of this preparation should be followed by an injection of fresh serum within twenty-four hours. Having the dried serum at hand, even although its immunising power may be considerably reduced in the process of drying, yet what it contains is more than sufficient in the early stage of many cases to stay the progress of the disease or to greatly modify its course.

Dr. Howie was glad to hear Dr. Downie's conclusion that it was in most cases quite possible to recognise diphtheria without a bacteriological examination. He entirely agreed with this.

Dr. R. M. Buchanan, whilst allowing that in some cases the clinical diagnosis could be a fairly confident one, was convinced that it was often unreliable. He quite agreed with the early use of the serum, especially in laryngeal cases, but until bacteriological evidence was obtained the use of the serum was essentially an experiment.

Dr. Downie allowed that there were cases in which clinical examination might leave the most experienced doubtful. But, as he believed the serum to be harmless, and as in true diphtheria delay was full of risk, he would certainly use the serum in such cases. That a bacteriological examination is advisable he quite admitted, but to wait for the result of this before commencing treatment was to waste time that was all important.

IV.—TONSILS FROM A CASE OF SO-CALLED MYCOSIS TONSILLARIS BENIGNA.

By Dr. Walker Downie.

On 12th October, 1894, I brought before this Society a man, aged 53, suffering from mycosis tonsillaris benigna (*Glasgow Medical Journal*, vol. xlii, p. 362). I showed that case because it was a well-marked example of the condition usually described under that designation, and because the line of treatment which had been pursued before he came under my care had been adopted, as is most frequently the case, under a mistaken diagnosis. The white patches associated with the condition are, as I then said, almost invariably mistaken for the secretion of acute follicular tonsillitis or for the local manifestations of diphtheria. That man had been treated as a case of diphtheria, while the patient whose tonsils I removed, and show to-night, had for weeks been under treatment for

lacunar tonsillitis. The boy whose tonsils are now shown was 11 years of age. He had for some months complained of irritation of the throat, which had given rise to a short cough or clearing effort, most frequently observed when his attention was occupied with his studies.

Over the surfaces of both faucial tonsils were numerous white excrescences, varying in size from that of a pin's head to that of a hemp seed. There were also a few similar excrescences on each posterior pillar, and two on the right lateral wall of the pharynx. They were tough, and firmly adherent to the surface beneath, and they were unaccompanied by any evidence of inflammation. The boy's general health was excellent.

There is not much difficulty in the diagnosis if attention be given to the nature and appearances of the new growths and to the condition of the parts around. The excrescences are usually fairly numerous and isolated; they are white, tough, and prominent, firmly adherent to the surface from which they spring, and are unaccompanied by local inflammation or constitutional disturbances. The condition is comparatively rare, and the cases, in my experience, occur much more frequently amongst private than amongst hospital patients.

Besides the cases described to-night, and the one shown here fully two years ago, I have seen four other well-marked cases. One, a lady, 20 years of age, was aware of having had white spots on her tonsils for fully three years. Another, a gentleman, 22 years of age, where both tonsils, both posterior pillars, base of tongue, and the pharyngeal wall were extensively involved, had only been aware of the presence of the excrescences for six weeks prior to the time when first seen by me. In another, a young lady, 15 years of age, the tonsils were covered with large white warty-like excrescences, the presence of which had been recognised two months previously, when she had been treated for diphtheria; and the fourth is a medical student, 19 years of age, whom I saw for the first time within the past fortnight. In his case the spots are few in number, and are distributed over both tonsils.

The condition has been described as a mycosis, and leptothrix has been looked upon as the exciting cause. Siebenmann, in 1895, demonstrated, by careful microscopical investigations, that the fundamental pathological condition is a cornification of the epithelium lining the tonsillar crypts, and proposed that the condition be termed hyperkeratosis lacunaris. Dr. A. Brown Kelly (in vol. ii of the *Glasgow Medical Journal* for

1896) published an interesting paper on this subject, in which the various cases recorded are reviewed, and his own observations, based on material obtained from his cases, are carefully detailed. As a result, he is led to the same conclusion as Siebenmann—that whatever the cause, the condition does not depend on a mycosis.

In one tonsil shown to-night, the excrescences are seen over the surface, for the most part projecting from the mouths of the follicles.

In the sections which were made for me by Dr. Ferguson, of the pathological department, Western Infirmary, masses of cornified epithelium are shown, both on the surface and in the lacunæ. It will be observed that the sections are chiefly composed of these epithelial masses, and that there is very little tonsil tissue intervening, so that the increase in the size of the tonsils is entirely due to the presence of these masses of laminated epithelium.

Meeting X.—5th March, 1897.

The President, Dr. W. L. Reid, *in the Chair.*

I.—A case of spasmodic torticollis cured by operation.

By Mr. R. H. Parry.

The patient, as shown to the Society, professed himself to be in good health, and his appearance confirmed this statement. Some two years ago he developed spasmodic torticollis, and in consequence of this was compelled to relinquish his occupation as a boilermaker. The head had been turned strongly to the left side, and the chin markedly elevated, and this condition persisted even after resection of the right spinal accessory nerve. The man had been discharged from hospital as incurable. Subsequently, he was admitted to the Victoria Infirmary, and expressed his desire to be operated on, however great the risk, his condition causing him so much inconvenience and annoyance. Mr. Parry, after observing the case for some time, came to the conclusion that the muscles at fault were probably the post-occipital group on the left side, and determined to divide the posterior primary divisions of the upper

cervical nerves. The operation had proved quite successful, the patient having since its performance—upwards of a year age—been entirely free from all distortion of the head.

II.—DEMONSTRATION OF SPECIMENS REMOVED BY OPERATION.

By Mr. R. H. Parry.

Mr. Parry submitted a number of specimens, and discussed the features of interest in connection with the cases they represented. The specimens included a group in which the uterus had been removed in consequence of the existence of uterine fibroids causing hæmorrhage and other pelvic disturbances; in two of the cases there was also pyo-salpinx and an ovarian tumour. In another group was a tubal pregnancy, removed in the second month of gestation, and showing the ovum *in situ;* also, a uterus and appendages removed for long-continued and very obstinate chronic metritis. Mr. Parry further showed a segment of the small intestine resected on account of fibrous stenosis which had produced chronic intestinal obstruction; and a scapula removed, with its attached muscles, in consequence of the growth of a parosteal sarcoma.

Meeting XI.—19th March, 1897.

The President, Dr. W. L. Reid, *in the Chair.*

I.—LANTERN DEMONSTRATION.

By Dr. D. J. Mackintosh.

Dr. D. J. Mackintosh gave a lantern demonstration to illustrate the value of the x rays in hospital practice, more especially as regards dislocations and fractures. The slides exhibited demonstrated (1) the value of the rays for diagnostic purposes in cases where the physical examination is not conclusive; (2) the actual displacements which occur in various classical fractures; and (3) the conditions which exist in ununited and badly set fractures. Among the most striking of the photographs were those illustrating congenital dislocation of the head of the femur, the presence of a coin in the

small intestine, and several dealing with various injuries in the region of the elbow-joint.

Dr. Mackintosh also illustrated the use of the cinematograph for purposes of medical demonstration. He threw upon the screen a series of rapidly-taken photographs of patients suffering from locomotor ataxia, diphtheritic paralysis, and hemiplegia, and in each case the characteristic peculiarities of the gait were very manifest.

II.—ON SOME DISEASES OF THE EYE, THE RESULT OF SYPHILIS.[1]

By Dr. Maitland Ramsay.

The frequent occurrence of diseases of the eye due to syphilis renders the subject one of great interest and importance. It is well known that, with the exception of the lens, each of the structures of the eyeball and its appendages may be affected, and ocular symptoms may occur either early or late in the course of the disease, and in the inherited as well as in the acquired form. It is not my intention, however, in this contribution to discuss at length the relationship between syphilis and eye diseases, or to do more than mention some of those eye symptoms which are the result of the visceral complications of tertiary syphilis. My purpose is simply to give details of a few cases in which the eye has been specially affected, and to endeavour to group these in such a way as to present a clinical picture of syphilis in so far as it affects the eye.

The acquired form of the disease may be first considered. The syphilitic poison may gain entrance to the system through the eye, and the primary sore then forms upon the eyelids or conjunctiva. Since the full and accurate descriptions of Ricord in 1850, the number of reported cases has gone on increasing, till it is now possible to arrive at some general conclusions. The favourite site for a chancre of the eyelid is at the inner canthus, and the lower lid is the one more frequently affected. It is seen in men oftener than in women, and is met with at all ages. In many instances the infection is purely accidental and non-venereal, and the patients have no suspicion of the syphilitic nature of the sore. It is often, therefore, very difficult to trace the source of contagion, and occasionally the ætiology cannot be determined. The most frequent modes of communication, however, are undoubtedly by the finger, lips, or tongue, or by sponges, towels, &c., which have been previously contaminated. From this

[1] Dr. Ramsay's paper was illustrated by lantern slides.

it will be readily understood how it is that medical men suffer so frequently from this particular form of chancre, so much so, indeed, that in France chancre of the eyelid has been designated the professional chancre.[1] While a doctor is brushing a syphilitic throat he may receive infection from the accidental fall of saliva on his face through the patient's coughing, or after touching a syphilitic sore he may accidentally carry his finger to his eye, and thereby inoculate himself. Infants and young children are often infected by being kissed by a nurse suffering at the time from mucous patches in her mouth. It is common amongst the lower classes to remove foreign bodies from the eye by means of the tongue, and if the operator suffers from mucous patches in the lips it is easy to understand how the patient receives infection. After a bruise upon the eye it is also a common practice to incise the skin and suck out the effused blood, and I have known of palpebral chancre arising from this cause. The application of the "fasting spittal" or of urine, both of which are frequently applied to inflamed eyes by the poor, may also be a source of contamination, and as these remedies are employed when the edges of the eyelid are inflamed and partially denuded of epithelium, the syphilitic poison will gain all the more ready access to the system. It has been affirmed that extra-genital chancres, and more particularly those occurring upon the eyelids, are apt to be followed by specially severe secondary symptoms, but my own experience does not tend to confirm the statement.

Case I.—*Chancre of eyelid in a boy 6 years of age—Ætiology obscure—Complete recovery.*

W. T., æt. 6, was admitted to the Eye Infirmary on 26th August, 1896. There was on the left lower eyelid an ulcer, which was said to have commenced as a little pimple upon the palpebral margin. It now involved the middle two-thirds of the lid, the edge of which was partially eaten into, and denuded of eyelashes. It was clearly circumscribed, its edges being hard and somewhat elevated, and it was covered by a greyish crust, the removal of which left a raw surface, which bled freely. There was marked œdema of the ocular conjunctiva, and marginal blepharitis had for several months

[1] Since this paper was written I have been consulted by a dentist on account of transient dilatation of his right pupil with paresis of accommodation. He told me that seven years previously, while extracting a tooth, his face was bespattered with blood and saliva. Some weeks afterwards a sore formed on the right inner canthus, and this was followed by all the usual signs and symptoms of secondary syphilis.

affected both upper and lower eyelids on the right side. The gland in front of the left ear was distinctly swollen, but it was not tender to touch. The appearance at once suggested chancre of the eyelid, but all the history that could be obtained was that the boy had received a scratch from a girl's finger-nail three weeks before. From what could be learned of the child's home surroundings, however, it is more than likely that he was infected by one of his own relatives, who kissed his eyelid after it had been scratched. Grey powder and quinine, half a grain of each three times a day, were prescribed, and the lid was dusted with iodoform, but in spite of this treatment the ulcer gradually increased in size, and the sub-maxillary, cervical, and supra-clavicular glands on the left side became swollen. Like the pre-auricular gland, these also were hard, freely movable, and painless. About a fortnight after the patient was admitted to the hospital, a papular rash, distinctly coppery in colour, appeared over the chest, and in a few days covered the whole body with the exception of the face. There was no sore throat. The powders were now (18th September) stopped, mercurial inunction was begun, and the ulcer dressed with black-wash. Improvement set in almost immediately, and in three weeks' time the eruption had disappeared, the ulcer had in great part healed, and the glandular swelling had become markedly reduced in size. By the end of October all that remained of the ulcer was a small erosion along the border of the lid. The mercurial inunction was now stopped, and small doses of the biniodide of mercury were prescribed. The boy was allowed to leave the hospital, and when he was last seen (February, 1897) at the dispensary, the glandular swellings were quite gone, and the only trace of the chancre was along the margin of the lid, where there was a slight loss of substance and seemingly permanent disappearance of the eyelashes.

The cartilage of the lid occasionally becomes affected, and a syphilitic tarsitis results.

Case II.—*Syphilitic tarsitis, followed several years afterwards by iritis of the same eye.*

Some years ago, a man, between 20 and 30 years of age, came to the Eye Infirmary, complaining that for many weeks he had suffered from inflammation of his right upper eyelid, the margin of which was swollen and red, and presented the appearance of a chronic blepharitis marginalis, from which all discharge had been carefully washed away. The usual local remedies were prescribed, but with no good effect, for the lid

became more and more swollen. Though it was very red it was not painful, and the patient complained more of the disfigurement produced than of any actual suffering. He admitted that he had been exposed to risk of infection, but he was not aware that he had ever suffered from syphilis. Biniodide of mercury was administered internally, and within a week thereafter the swelling of the lid had become appreciably less, and by the end of a month had completely disappeared. The patient was told to continue the medicine, and he did so for some weeks. For a time he was lost sight of, but last summer he returned to the dispensary suffering from inflammation of the iris of his right eye, and this also improved very rapidly under antispecific medicines.

Paresis or paralysis of the ocular muscles is very frequently due to syphilis, and in many instances indicates the commencement of degenerative changes in the cerebro-spinal system. The paresis may be so slight that no squinting is noticeable, but, if the patient sees with both eyes, he at once complains of double vision. It is well to remember that this diplopia may be of brief duration, and that it may pass off spontaneously without the aid of medicine, but it is nevertheless of serious import, and the more transitory it is the worse the prognosis, for it is then to be regarded as an early symptom of disease in the spinal cord, more particularly tabes dorsalis. This transient diplopia is occasionally accompanied by contracted and unequal pupils, and under such circumstances its significance becomes all the graver. In other cases the paralysis is much more profound, and sometimes one muscle after another becomes affected, until all the extra-ocular muscles are involved, and the ophthalmoplegia externa is complete. Similarly, the muscles inside the globe may be paralysed, giving rise to complete ophthalmoplegia interna. In such cases the prognosis is the less favourable the longer the interval of time between the primary infection and the appearance of the diplopia, and naturally it is much more serious in those who, from carelessness on their own part or from other causes, have not been subjected to a thoroughgoing course of antisyphilitic treatment at the beginning of their illness.

Case III.—*Transient paralysis of right oculo-motor nerve, twelve years after primary syphilitic infection, and followed by atrophy of both optic nerves.*

A. H., æt. 49, was first seen on 7th November, 1894. She was then suffering from complete paralysis of the right third cranial

nerve, and complained of giddiness and pain in her head, which had been present for about eight months. She said her right upper eyelid began to droop about a month before, at which time also she began to see double. Up to twelve years before, according to her own account, she had enjoyed excellent health, but about that time she had suffered from difficulty in passing urine, and a medical man whom she consulted told her she had syphilis. She was put under treatment and speedily recovered, but as she was leading a very irregular life at the time she did not continue to take the medicine prescribed. As far as can be ascertained from her own statements, however, any secondary symptoms were very slight. The only thing unusual which she remembered was that, six years before, her hair had fallen out in large quantities. From that time until the onset of the paralysis of the oculo-motor nerve, for which she sought relief at the Eye Infirmary, she continued as she thought in her usual good health. When she came to the dispensary, there was complete ptosis on the right side, and when the eyelid was raised she at once complained of double vision. It was found that there was a very marked divergent squint, and she was unable to move the eyeball upwards, inwards, or downwards. The pupil was fully dilated and fixed, and there was also complete paralysis of accommodation. There were no discoverable changes in the fundus oculi. No complaint of dimness of sight was made, but unfortunately the acuity of her vision at this time was not recorded, although my impression is that it was tested and found normal in both eyes. A mixture containing perchloride of mercury and iodide of potassium was prescribed, and after it had been taken for a month there was a marked improvement, and by the end of two months she had completely recovered. She was advised to continue the medicine, but neglected to do so. She was not seen again until the end of March, 1896, when she returned to the dispensary complaining that her sight had begun to fail, and when her visual acuity was tested it was found to be reduced to $\frac{6}{18}$ in the right eye, and $\frac{6}{12}$ in the left. No trace of the previous paralysis of her right third nerve could be detected, but the ophthalmoscope revealed distinct pallor of both optic discs, accompanied by a dimunition in the calibre of the retinal arteries, and it was easy to demonstrate that the field of vision was much contracted. Once more, however the patient was lost sight of, and it was not until the middle of February, 1897, that she again came under observation. She was now totally blind, her pupils were dilated and fixed, and there was complete atrophy of both optic nerves. Careful

examination had all along been made for any signs of disease of the spinal cord, but each time with negative results. She now, however, complained that she was frequently troubled by severe flashes of pain in her legs, but patellar tendon reflex was still present, and there was no want of co-ordination in her movements. It is, however, probable that evidences of degeneration of the spinal cord will by and by supervene, and that the transient paralysis of the right third nerve, and the subsequent complete atrophy of both optic nerves, are to be regarded as pre-ataxic symptoms in a case of tabes dorsalis.

Inflammation of the cornea is not a frequent result of acquired syphilis, and this is all the more difficult to explain when it is remembered how frequent is the occurrence of interstitial keratitis in the inherited forms of the disease.

Case IV.—*Severe inflammation of both corneæ, associated with the occurrence of frequent miscarriages and eruptions on the skin—History of syphilitic infection at least twelve years before the eyes became affected.*

The patient was a woman, æt. 32, who had been married thirteen years, and was infected by her husband during the first year of her married life. Her first child was born alive, but showed signs of inherited syphilis, and died before it was a year old. Thereafter she had repeated miscarriages, and suffered from skin eruptions, which her medical attendant recognised as syphilitic. She first came under my observation on 22nd May, 1895. Her left cornea presented a typical ground-glass appearance. There was marked injection of the limbus, and the pain, lachrymation, and intolerance of light were very intense. Atropine was instilled and fomentations were applied, and a mixture containing perchloride of mercury, quinine and iron was prescribed. The pupil dilated fully, but as there was no abatement of the symptoms a blister was applied to the left temple. The cornea, however, became more and more vascular, the blood-vessels forming a regular pannus, which invaded the cornea chiefly from above and from below. On the 24th July it was noted that there was a dense opacity, somewhat yellowish in colour, in the centre of the left cornea, the surrounding parts of which were covered by blood-vessels so numerous that they formed a dense layer which resembled red velvet. There were great ciliary congestion and intense photophobia, and the patient described the pain in her eye as "maddening." The tension of the eyeball remained normal. By the end of August the cornea began to clear at its periphery, and the pannus contracted very slowly centripetally until, in

October, it formed a soft mass, which resembled a red berry projecting from the centre of the cornea. By this time, however, the right eye had become affected, so that the patient was now perfectly blind. The right cornea passed through changes exactly similar to those just described as having occurred in the left, but the pain and photophobia were much less. Treatment consisted in the regular administration of perchloride of mercury combined with tonics, the shading of the eyes from the light, the application of atropine with other sedatives both local and general for relief of pain, and the giving as much nourishment as the patient could be induced to take. Shortly after this the woman was confined to bed by an attack of "peritonitis," and did not again come under observation until February, 1897. She had taken the medicine very irregularly, but the vascularity had gradually disappeared from the cornea, and her sight had recovered sufficiently to permit her to see to guide herself about and work in her own house, though she was still afraid to go out of doors alone. The corneæ were marked by interstitial opacities and had their curvatures considerably altered, but all abnormal vascularity had passed away, the tension was normal, and the pupils dilated fully under the influence of atropine.

The syphilitic virus attacks the uveal tract with great frequency, and often with peculiar virulence; and this is not to be wondered at when it is remembered how prone syphilis is to implicate the smaller blood-vessels—arteritis syphilitica—and this, too, even in those cases in which the secondary symptoms have not been severe. Of all the causes of iritis, syphilis is admitted to be the most frequent, and although it is difficult in the early stages to be sure of this diagnosis from the eye appearances alone, yet as the inflammation of the iris proceeds there often develop signs and symptoms so characteristic that all doubts are removed. When the iritis accompanies the sore throat and the cutaneous eruptions of secondary syphilis its cause is perfectly clear, and it is then merely one of the manifestations of the general disease; but it must be admitted that many cases occur where, in the absence of a syphilitic history, it is no easy matter to distinguish the syphilitic from the non-syphilitic form of iritis. Still, though every ophthalmic surgeon has formed in his own mind a clinical picture of the appearance presented by inflammation of the iris when it is the result of syphilis, yet of all the so-called characteristic signs—turbidity of aqueous, greasy spots on the posterior surface of the cornea, opacities in the vitreous,

a degree of dusky red pericorneal congestion out of all proportion to the severity of the pain, which for the most part is circumorbital and nocturnal—none can be considered pathognomonic except the formation of gummatous nodules upon the iris, and situated for the most part close to the margin of the pupil. These nodules vary in size, and may not be visible until the pupil is dilated by atropine, when they are detected on those parts of the iris which are adherent to the anterior capsule of the lens. Syphilitic iritis, moreover, oftener than any other form involves both eyes, and although the one is as a rule affected after the other, yet it is by no means unusual to find both inflamed at the same time. Relapses in the form of frequently recurring attacks are not common, but iritis when due to syphilis is liable to be complicated with, or to be followed by, inflammation of the choroid and the retina.

Case V.—*Syphilitic iritis, characterised by unusual turbidity of the aqueous, and by the large size of the gumma on the iris.*

The patient was a woman, æt. 28, who was seen at the Eye Infirmary on 25th March, 1895. Four months previously, shortly after the birth of a child, her right eye became inflamed. She said it did not cause her much pain, but "ran water constantly." There was a clear history of syphilis, and this was confirmed by a letter which was afterwards received from her family doctor. When she was first seen a greyish-pink vascular growth occupied the lower portion of the iris. This, however, was partially obscured by the great turbidity of the aqueous, which was almost milky in appearance in the lower two-thirds of the anterior chamber. There was an intense deeply livid pericorneal injection; but pain was remarkably slight, and, although the eye watered a great deal, there was very little intolerance of light. Perchloride of mercury was prescribed and atropine instilled, and after a week the turbid aqueous had become so transparent that the outline of the gumma on the iris could be clearly seen. It was now seen to be composed of a cluster of orange-red nodules, varying in size, and extending from the pupillary border into the substance of the iris for a considerable distance towards the periphery. Numerous roundish greasy-looking spots were now also seen on the posterior surface of the cornea.

Under the steady continuance of the treatment indicated the pericorneal injection gradually diminished, and the gumma rapidly disappeared. So rapid, indeed, was the progress of the case that in a few weeks the patient, considering that she

was well, ceased to attend the dispensary. There is usually, however, considerable atrophy of the iris after the absorption of a gumma so large as was present in this case; but, as a rule, uncomplicated cases end in resolution, with more or less perfect recovery of eyesight.

When, however, the gumma extends backwards, and involves the ciliary region, the prognosis is by no means so favourable. Severe pain and photophobia are then constant symptoms, and in virulent cases the eye may be destroyed completely in spite of even the most energetic antisyphilitic treatment. One of the worst cases which has ever come under my own observation was that of a man who at the time his eyes became affected was suffering from a very profuse eruption in his skin, and from ulceration of his throat so severe as to be almost phagedænic. The left eye passed through the ordinary stages of acute syphilitic iritis, and recovered, leaving some points of adhesion between the iris and the capsule of the lens. When the left eye was almost well the right became acutely inflamed; the pain was very severe, and was circumorbital and markedly nocturnal in character; there was intense pericorneal injection with great tenderness over the ciliary region. In spite of the most energetic antiphlogistic and antisyphilitic treatment the disease continued to progress. At different points round the cornea the sclerotic became inflamed, and raised the overlying conjunctiva in circumscribed patches, violet-red in colour, and intensely tender to touch. Thereafter the cornea began to lose its transparency, and to bulge forwards. These very acute symptoms lasted for nearly a fortnight, and then gradually subsided; but the sclerotic, thinned as a result of its previous inflammation, allowed the choroid to shine through, and showed a slatey-blue discolouration. By and by, yielding to the force of the intra-ocular pressure, it first formed staphylomatous projections over the ciliary region, and ultimately became distended in its entire circumference, so that the eyeball was completely disorganised.

Sometimes the disease, instead of primarily attacking the iris and the region of the uveal tract supplied by the anterior ciliary and the long ciliary arteries, lays hold on the portion deriving its blood-supply from the short ciliary arteries—the choroid proper. Notwithstanding the direct continuity of the iris with the choroid, inflammation may confine itself to the one or to the other; but in acquired syphilis independent inflammation of the former is much more frequent than of the latter.

Case VI.—*Severe choroiditis in both eyes, which occurred as one of the early secondary symptoms in an otherwise mild case of acquired syphilis.*

C. B., æt. 20, contracted syphilis in June, 1892, and mild secondary symptoms appeared in August, but his eyesight remained unaffected until about the beginning of December, shortly after which time he came under my observation. His visual acuity was then diminished to $\frac{6}{18}$, and both light and colour senses were markedly reduced. Ophthalmoscopic examination showed congestion with œdema of both optic discs, and great swelling and tortuosity of the retinal veins, while the fundus as a whole was intensely red. In a very short time under the influence of antispecific remedies vision considerably improved, and on 23rd December the acuity was $\frac{6}{12}$ in the right eye and $\frac{6}{9}$ in the left. In the beginning of February, however, a great change for the worse occurred. He told me that suddenly, "in less than half an hour," his sight got quite blurred, and when he looked straight before him he could see nothing. He felt no pain at the time, but afterwards he occasionally experienced a dull aching across his forehead. He had been living in the North of Scotland, where the ground was covered with snow, and as the weather was fine he had been walking about a great deal, and although he never neglected to wear dark protective glasses, he complained that the bright light always produced a most unpleasant dazzling sensation in front of his eyes, and he attributed this sudden failure in his vision to the effect of the sunlight glancing on the snow. It was found that the visual acuity of the right eye was barely $\frac{6}{12}$, while that of the left was so reduced that the largest letters of Snellen's types were indistinguishable at the regulation distance. In both eyes there was a central scotoma, that in the left being much the larger, and roughly corresponding to the size of a watch held at four feet from his eye. A faint haze was seen over the macular region, but otherwise the ophthalmoscopic appearances were much as they were in December. A fly-blister was applied to the nape, and the sore was kept open, and when, a week afterwards, the patient was again examined his sight with the left eye had improved to $\frac{6}{36}$ and by the end of February to $\frac{6}{9}$. The vision of the right eye remained unaltered. The blister was now allowed to heal, but the medicines prescribed—perchloride of mercury one-eighth grain, with iodide of potassium 10 grs.—were continued. At the end of March his sight was fairly clear, but whenever he was tired he invariably suffered from a transient

loss of visual power, and the sense of dazzling became most disagreeable. The improvement in vision was maintained until the middle of May, when "want of clearness" began to be troublesome, and was accompanied by a "glittering" in front of both eyes. A blister was again formed on the nape, and kept open for a month, and while it was discharging all the disagreeable subjective symptoms were decidedly less. Every one of them returned again, however, whenever the blister was allowed to heal, and towards the end of July it was suddenly discovered that the outlines of objects when looked at with the left eye appeared distorted. This distortion became so extreme that as the patient walked along the street some of the lamp-posts seemed irregularly crooked, while others farther off appeared as if they had been broken across, and the faces of the passers-by were so misshapen as to be unrecognisable. Blistering was again resorted to, and by the middle of September the distortion seemed to be getting rather less, and vision had improved so much that he was now able, to use his own expression, to "feel his way" through the letters of the test-types at the usual distance. Early in October the dazzling previously referred to became more pronounced, and as it was now accompanied whenever he walked by flashes of light of a "maroon" colour, succeeded by a "greenish-blue" haze in front of the eyes, it caused him great distress. The blister was kept open, and the form of the mercurial medicine was altered to a combination of blue pill, rhubarb, and quinine, with extracts of cannabis indica and belladonna. When he was again examined on the 4th of November he said he could now "take in better all that was round about him," and instead of groping slowly through the test letters he could see a whole line at a glance. Ophthalmoscopic examination showed that the inflammation was passing away from the optic discs, but numerous spots of soft-looking exudation of a light pinkish-yellow colour were visible over the fundus oculi. Sight again began to deteriorate, and numerous fine sooty particles showed in the vitreous, and presented to himself whenever he turned his eyes the appearance of black specks floating about in large numbers. Complaint was also made of the presence of some "greyish-black spots" of considerable size, which seemed always to remain stationary, and of a "whitish film," irregular in its thickness and in parts perforated as if it had been worn through, which, hanging like a veil in front of the centre of the eye, appeared to be the chief cause of the defective vision. The flashes of light and general

dazzling were according to his own account not now so troublesome, but he described what he called a "gold-dust appearance," which, although not constant, always appeared whenever his eyes were exposed to light. When, however, they became accustomed to the light this appearance passed off, but if he then went into a darkened room something like a piece of goldleaf, irregular in its outline, appeared before the centre of each eye. It seemed to the patient that this appearance was due to a concentration of the gold-dust particles into one spot, because when the eyes were again exposed to light it appeared, in a time which was longer or shorter according to the degree of brightness of the light, to break up completely, and was replaced by the typical gold-dust appearance. These subjective phenomena gradually became less pronounced, and by the beginning of March the vision had greatly improved. His own description was that while formerly he always felt very blind on entering a room which was badly lighted, he could then see very much better in a dim light, and could read small print with comparative ease. The optic disc was quite well defined in its outline, and the patches of exudation had disappeared, but towards the periphery of the fundus there were numerous white areolar spots of choroidal atrophy, each surrounded by a densely pigmented border. From this time onwards progress was steadily and satisfactorily maintained, and in October the patient returned to college and found that his eyes were equal to the amount of work necessary for his ordinary studies. When he was tired or when he walked quickly there was still a tendency for the dazzling to return, but, with the exception that he now found it necessary to use a stronger light when reading than he required before his illness, he experienced no trouble from his eyes. Towards the end of November a peculiar papular eruption of a coppery-red colour appeared over his thorax, but passed off completely in a few weeks. When the patient was last seen he said that he was able to do a full day's work with his eyes without feeling the slightest inconvenience, and that his health as a whole was better than it had been for a very long time. He had been under treatment for exactly three years—from December, 1892, to December, 1895—and for nearly all that time he had taken mercury in one form or other, and for several months on each of four different occasions a blister was kept open on his nape. He was so convinced that this was productive of good that he felt somewhat reluctant to allow the blister to heal, and such personal experience of a patient corroborates my own firm

conviction regarding the value of open blisters and setons in the treatment of all forms of deep-seated inflammatory diseases of the eye, more especially when these are of syphilitic origin; nor when proper care is taken with the dressing do these blisters or setons cause much discomfort.

The close proximity of the choroid to the ciliary body and the iris on the one hand, and to the optic nerve and retina on the other, renders it very easy for the inflammation to travel forwards in the one case, and give rise to a choroido-iritis, or to spread by contiguity of structure in the other, and set up a choroido-retinitis. Such complications invariably occur in all cases in which the onset is exceptionally acute, or in which antisyphilitic treatment is not carried out from the beginning with energy and perseverance.

Case VII.—*Choroido-iritis in both eyes, the pupil in the one being occluded and the iris bulged forwards, while the ophthalmoscope revealed in the other clear evidence of choroiditis-disseminata.*

C. P., æt. 30, came to the Eye Infirmary in 1893. His left eye was quite blind, while with the right he could barely see to guide himself about. He had not evidently observed the failure of his left eye, and had sought no medical advice until he had been alarmed by the rapidly progressive deterioration in the vision of his right. There was a strong suspicion of syphilis. In the left eye the iris presented a characteristic greenish discolouration; the pupil was irregular, contracted, and occluded by inflammatory exudation, and its margin was so firmly sealed to the anterior capsule of the lens that the normal circulation of fluids through the pupil was impossible. The iris was in consequence pushed forwards, and presented the typical appearance of *iris bombé*. The tension was reduced, and it was very doubtful if there was even a faint perception of light with this eye. When the right eye was examined the true nature of the disease became at once apparent. There was a want of elasticity in the iris which prevented the pupil from dilating freely under the influence of atropine, the lens was muddy and the vitreous contained numerous opacities, and ophthalmoscopic examination also showed the existence of well-marked choroiditis-disseminata. Under the influence of antisyphilitic remedies vision somewhat improved, and after six months of medicinal treatment an iridectomy operation was performed, with the result that the sight became still better. This improvement was, however, of short duration, for with the advancing opacity in the lens

vision again began to deteriorate. The cataract took nearly a year to mature, but at length it was possible to extract the lens. At first the result of this operation seemed very satisfactory, as the patient was enabled to discern objects and to walk about unattended; but after a few weeks the eyeball became painful, the tension was reduced, and there was great tenderness on pressure over the ciliary region. The aqueous chamber deepened, the iris became retracted, and it was not possible to illuminate the fundus with the ophthalmoscope. The patient was wholly unable to discern light from darkness. These acute symptoms gradually passed off, but sight never returned, and the eyeball slowly passed into the condition of phthisis bulbi.

The retina is implicated in every case of severe choroiditis, and such subjective phenomena as those included under the terms photopsia, chromatopsia, metamorphopsia, and micropsia are produced by irritation of its outer or sentient layer. Syphilitic retinitis, however, usually occurs somewhat late in the course of the constitutional disease, and most of the cases which have come under my own observation were women who had been infected years before the onset of the eye symptoms. It is needless to say that in every one of these cases treatment against the primary disease had either been wholly neglected, or, if begun, had been inefficiently carried out. Retinitis due to syphilis may, however, occur early, and one of the most characteristic examples of it which I have ever seen was the case of a medical student who, while attending a woman in her confinement, got his right forefinger inoculated, and who, when his sight began to fail, was still suffering from ulcerative paronychia. Both eyes were affected, the left, however, much more profoundly than the right. The chief complaints were of dimness of sight—the visual disturbance being for the most part central—of muscæ, of bright flashing of light, and of distortion of outline. The ophthalmoscopic appearances of the fundus were very characteristic. The whole background of the eye appeared veiled; and this mistiness, which was thickest over the central region, rendered the optic disc and the retinal vessels indistinct. No pigmentation of the choroid was visible; but, by careful inspection of the most clouded area in front of the papilla and the macular region, a fine dust-like appearance could be detected.

In favourable cases the filmy white cloud formed over the fundus entirely disappears. Probably a favourable prognosis

might be given in the majority of cases if the patient would steadily persevere with proper treatment for a sufficient length of time; at least two years. In dispensary practice, however, it is usual to find that whenever vision has improved the medicine is neglected, with the result that sooner or later a relapse takes place, and by and by more or less of a cloudy haze settles permanently over the retina, which may also in the further progress of the disease become pigmented, the diminished calibre of the blood-vessels being accompanied by waxy pallor of the optic disc.

Case VIII.—*Neuro-retinitis in both eyes, which occurred five months after the primary infection.*

J. B., æt. 26, contracted syphilis about the beginning of May, 1894. He did not observe the primary sore, and was unaware that anything had happened to him, until he began to suffer from sore throat. His hair also fell out in such quantity and so rapidly that he soon became quite bald. As the doctor whom he consulted at this time did not recognise the syphilitic nature of his condition, he became steadily worse, and it was not until three months afterwards, when he consulted another medical man, who at once prescribed antispecific remedies, that his symptoms began to improve. It was many weeks, however, before his throat healed; his lips and tongue became badly ulcerated, and notwithstanding the great improvement in his general health, his sight began to fail. The first eye symptoms were noticed in September, when he found some difficulty in reading small print. He said a peculiar haze every now and then rose like a mist before his eyes, and, if he were looking at a small object, prevented him from seeing it, and while it lasted his vision was very indistinct. When he tested his right eye alone objects appeared much smaller than they did when he saw them with his left. These symptoms alarmed him considerably, so he consulted an ophthalmic surgeon, and it is interesting to know that at this time, about the middle of September, there were no lesions discoverable in the fundus oculi by means of the ophthalmoscope. Although in every other respect he continued to improve, yet his eye-sight steadily deteriorated, and when he came under my care on the 27th December, he was barely able to see the largest letters in Snellen's test-types with his right eye, but with the left his acuity was reduced only to $\frac{6}{9}$. His pupils were equal, and active, and the intra-ocular tension was normal, but the ophthalmoscope revealed very striking pathological changes in the fundus oculi. The right optic disc was prominent, congested, and very indistinct in outline, the veins were

swollen and tortuous, and the region surrounding the macula was of a deep red colour, and dotted over by minute yellowish-white spots. The left fundus exhibited all the appearances characteristic of a mild attack of neuro-retinitis. He was advised to continue the mixture of perchloride of mercury and iodide of potassium, which he had been taking for nearly five months, and a blister was applied to his nape, and kept open by means d'Albespeyre's blistering paper No. 2. When he was again examined on 25th February, 1895, the vision of the right eye had very considerably improved, but the sight of the left was reduced to one half the normal acuity. He was urged to take his medicines with unfailing regularity, and when the blister healed, after having remained open for six months, a seton was inserted between his shoulders. He again reported himself to me in November, and he then stated that, as he had made such satisfactory progress, the seton was removed a month before, but since then, although previously the sight of both eyes had been steadily improving, the vision of the right had varied in a most uncertain manner, while that of the left had become decidedly worse, and objects appeared to it very much smaller than they really were. The ophthalmoscope revealed marked lessening of the signs of inflammation in the right fundus oculi, but the left optic disc was now very woolly in appearance, and the retinal veins were tortuous and congested, while in the macular region appearances existed very similar to those described as formerly present in the right eye. Leeches were applied to the left inner canthus, and the bloodletting was followed speedily by considerable improvement in sight. A few days after a seton was again inserted and kept steadily in use with but little interruption until January, 1897, the antispecific remedies having all that time also been taken with great regularity. At that date the vision of either eye was almost equal to the normal standard, but the patient's own statement was that he could see more clearly with his left eye than with his right, the macular region of which now presented a pigmented area dotted over with white spots, which, however, were irregularly placed, and did not show any trace of the stellate arrangement characteristic of some other forms of retinitis. As there were still in both eyes some floating bodies in the vitreous, and as the retinal vessels were congested, it was advised that a seton be worn continuously, and that the biniodide of mercury be taken regularly, for at least six months longer.

It now remains to consider those eye diseases which are

due to the inherited form of syphilis, and at the outset it may be remarked that while on the one hand there are few eye affections originating in the mesoblastic structures of the globe, which may not be the result of some hidden venereal taint, yet, on the other hand, it must be admitted that it is often extremely difficult to obtain a clear specific history even in those, which, some assert, never occur except in children of syphilitic parentage. Every suspected case ought therefore to be submitted to careful and thorough examination, and treated on its own merits. Eye diseases, when due to intra-uterine inflammation, may show themselves at birth, but it is more usual for the symptoms to appear during the early months of infancy, and in many cases they are not revealed until the period of puberty is reached. The injurious effects of hereditary taint may manifest themselves in the deep as well as in the superficial structures of the eyeball. Iritis of a mild type is not an uncommon disease in infants born of syphilitic parents. It usually appears when the child is about five months old, and girls are affected more frequently than boys. It is sometimes complicated by congenital cataract, and the margin of the pupil is then deeply pigmented, and firmly adherent to the capsule of the lens. When the mothers of these children are examined it is often found that they have become infected with syphilis during pregnancy, and that although the infant was apparently quite healthy when it was born it afterwards developed snuffles, eruption on nates, and other of the well known signs of inherited syphilis.

Case IX.—*Choroiditis in both eyes in an infant, accompanied by sudden development of well-marked nystagmus—History of syphilis in the mother at the time of the pregnancy.*

Mrs. B., æt. 24, was a strong healthy woman up to the time of her marriage in June, 1894. Two months afterwards she suffered from head pain so severe as to disturb sleep, an ulcerated throat, and a coppery-coloured eruption all over her body. She consulted her doctor, who at once prescribed antispecific medicines. Just about this time she became pregnant, and acting upon the advice of her medical attendant she continued to take her medicines during the whole course of her pregnancy. In June, 1895, she was safely delivered of a female child. The infant was small, but appeared healthy, and after the first few days it was weaned and brought up on the bottle. It did not thrive well, however, but became pale and puny. When it was a month old mercurial inunction was begun, and continued for two months, and grey powder was administered internally. Within the time stated the

child's health improved so much that this treatment was discontinued, and for two months more all seemed to go well, the only thing that was remarked being that the child had a peculiar habit of staring steadfastly at bright light. When it was five months old, however, nystagmus suddenly appeared in both eyes, and it was at this time that the infant first came under my observation. The staring expression on the face was very noticeable. The pupils were large, but equal in size and reacted, although somewhat sluggishly, to the stimulus of light. The oscillatory movements of the eyeballs were so pronounced that it was very difficult to make a satisfactory ophthalmoscopic examination. It was seen, however, that the optic discs were small and pale, and that the retinal blood-vessels were reduced in calibre, while the whole fundus presented the appearance of having been dusted over with coarse grains of black pepper. The mercurial inunction was resumed, and in three weeks' time the nystagmus quite disappeared, and it has never returned. The child was not seen again by me for more than a year, during which time it had given to it regularly the medicines prescribed by the family doctor. When I examined it again at the end of this period, the mother stated that for several months previously she had not observed anything peculiar about the child's eyes, and so far as she could judge its sight was perfectly good. The staring expression was not now so noticeable, and there was not the slightest quivering motion to be detected when the eyes were exposed to light. The ophthalmoscope, however, revealed that both optic discs were still small and pale, and that scattered over the whole fundus were numerous spots of black pigment, with here and there a small white patch, the result of choroidal atrophy.

By far the most important affection of the eye in hereditary syphilis is, however, interstitial inflammation of the cornea. It usually occurs between five years of age and twenty, but it is occasionally present during intra-uterine life. Not long ago a baby was brought to the Eye Infirmary with a well-marked congenital opacity in the substance of its right cornea, evidently due to fœtal keratitis. The left cornea was greatly increased in size and the eyeball was enlarged uniformly in all its dimensions giving rise to that condition designated as buphthalmos or ox-eye. The medical man who sent this case told me that the child's parents had suffered from syphilis.

True interstitial keratitis is seen oftener in girls than in boys, and in those who are predisposed to it a very trivial

exciting cause is sufficient to determine an attack, the prominent symptoms of which may be described as follows. At first the child has difficulty in facing the light, and when the eye is examined a few small greasy-looking spots are to be seen in the substance of the cornea, the surface of which is rough but not as a rule abraded. The inflammation starting from these foci spreads rapidly until the cornea completely loses its transparency and comes to resemble a piece of ground-glass. The blood-vessels of the limbus are congested, and the amount of pericorneal injection, taken along with the degree of photophobia and lachrymation, forms a good indication of the severity of the attack. Fringes of minute blood-vessels not only traverse the surface of the cornea but also invade its substance, and as a result of this vascular injection the ground-glass appearance is lost and the cornea assumes a rusty colouration, while in some cases the vascularity is so great that it becomes like a piece of red cloth. Since these newly formed blood-vessels encroach upon the cornea from its margin, an area in its centre usually remains uninfected. This is of a yellowish-white colour, and somewhat resembles an abscess, but the formation of pus or the occurrence of ulceration is exceedingly rare. At this stage the intolerance of light is so extreme that for the most part the eyes are kept firmly closed, and the blepharospasm and lachrymation contribute to form a fissure at the outer canthus, the presence of which causes intense pain whenever the eyelids are forcibly separated. In a time varying from a few weeks to several months the vascularity lessens, and, with the disappearance of the blood-vessels, the cornea will begin to clear up, and in a mild case will regain its transparency in a comparatively short time. It may be here stated, however, that when a mother is infected at conception or during the early months of pregnancy the child will suffer acutely, and if its eyes become affected the keratitis is always severe and takes years to run its course. Eyes which have passed through an attack of interstitial keratitis are, however, easily recognised by a peculiar lack-lustre appearance of the iris and the increased depth of the anterior chamber; and sometimes the scars of a pre-existing choroido-retinitis are detected by ophthalmoscopic examination. Just as the one eye is recovering its fellow generally begins to suffer, as in nearly every case the disease is symmetrical, although it rarely begins in both eyes simultaneously. The average duration of a mild attack is from three to nine or twelve months, but many cases run a much more protracted course, and that too in spite of careful medicinal and hygienic

treatment. The more severe the attack the denser is the infiltration of the corneal substance, and the less likelihood is there that it will recover perfectly. Nebulous opacities are apt to remain permanently, and these, although so slight as to be barely visible unless the eye be carefully examined, always greatly interfere with the normal acuity of vision. Moreover, the curvature of the cornea is also altered so much that a high degree of astigmatism is produced. In all severe cases the iris becomes implicated, and the inflammation travelling backwards involves the choroid and retina. These complications are all the more likely to occur if during the course of the keratitis any acute illness supervenes. I have at present a case under my care where the patient just as she was recovering from a moderately severe attack of interstitial keratitis was seized with acute tonsillitis. Almost immediately the tension of both eyeballs became much reduced, and the corneæ more opaque than ever they had been before. It is now four years since this occurred, but the corneæ are still flattened and densely opaque in their central portions, and although the intra-ocular tension has considerably improved, vision is reduced to a perception of light. Synovitis of the elbow and the knee-joints, periosteal swellings of the long bones, &c., most frequently also occur in those cases where implication of any portion of the uveal tract has taken place.

Interstitial keratitis, when due to hereditary syphilis, is always associated with certain peculiarities of physiognomy, and although all the appearances about to be described are rarely to be seen in the one patient, yet when even a few of them are found in combination they constitute most trustworthy evidence of the existence of hereditary taint. The conformation of the face is somewhat angular, the features are contracted and drawn, the skin is coarse, and the complexion is pale and earthy. The forehead is prominent, and the skin covering it is thrown into wrinkles through the frowning incidental to the prolonged suffering from fear of the light. The bridge of the nose is depressed and may be completely sunken as a result of loss of the bones from syphilitic ulceration, and, from a similar cause affecting the skin, the angles of the mouth and alæ nasi are scarred and fissured by white cicatrices. The teeth are often stunted in their growth, peg-shaped, and irregularly placed, and most characteristic of all is the notching of the upper central incisors of the permanent set. Some of these patients are abnormally precocious, while others are dull and stupid. In a certain proportion of cases the suffering produced by defective sight is augmented by impairment of

hearing. The deafness is sometimes due to disease of the middle ear connected with ulceration of the throat and perforation of the palate, and then the power of hearing may return to a certain extent as the otitis media improves. When, however, there is inflammation of the auditory nerve, the hearing is lost rapidly, and the patient becomes stone deaf for the remainder of life.

Meeting XII.—2nd April, 1897.

Mr. H. E. Clark *in the Chair.*

I.—Case of Excision of Ankle performed three years ago.

By Dr. Edington.

W. S., æt. $3\frac{4}{12}$ years, was admitted to the Royal Hospital for Sick Children in January, 1894, during my term of office as house surgeon there. He had a swelling of left ankle, of four weeks' duration, but his friends stated that ever since he had begun to walk he had suffered from weakness in left foot.

On examining the parts there was a rough resemblance to rickety deformity, but on more minute inspection a swelling, more or less elastic, and evidently caused by some synovial mischief in the ankle-joint was found, in addition to enlarged bony extremities. The cautery was applied a fortnight after admission, but in April the swelling, having become fluctuant, was incised, and tuberculous matter evacuated. Some disease was found in the astragalus near the head, and the affected part of this bone was scraped. The case did not show any signs of improvement, and one month later I decided to perform excision of the joint.[1] This was done by a transverse incision stretching across front of ankle from malleolus to malleolus. Before dividing the extensor tendons they were looped up by a long ligature. The astragalus was removed entirely, and the joint found to be lined by a wall of tuberculous granulation tissue. This was cut away with scissors, and scraped with Volkmann's spoon. The calcaneo-astragalar synovial membrane was also diseased, and as the calcaneum was not indubitably sound, its cancellous tissue was entirely

[1] By kind permission of Dr. Fleming.

scooped out. A slice was taken off the lower end of leg bones, and the tibio-fibular articulation scraped, as also the cancellous bone in lower end of tibia. The cavity of the os calcis was packed with iodoform and boracic acid (1 to 3), some gauze stuffing placed between leg bones and tarsus, and tendons and skin sutured separately.

The wound gave some trouble, the skin became irritated, and the stitches cut out, the wound healing by granulation. He was dismissed with foot in plaster at end of two months. One month later the plaster was removed, and he was able to limp along wonderfully well. It was observed that there was considerable softness about the sole under the calcaneum.

In July of 1895, he was readmitted to the hospital under the care of Mr. Parry. A small sinus at inner end of the cicatrix was injected with iodoform and glycerine, and he was dismissed with the part in plaster.

He was readmitted in October, 1895, when Mr. Parry scraped out a tuberculous focus in lower end of tibia, removing a slice from the lower end of shaft.

He was dismissed to Convalescent Home in January, 1896, when it was noted that, although he walked with ease, his toes were "dropped."

Present Condition.—With his boots on it is impossible to tell which is the affected limb. On examining the parts after removal of clothing, it is found that the foot is displaced outwards from axis of leg, so that while the sole meets the ground in normal fashion, the lower end of tibia projects inwards to extent of about half an inch. The cicatrices have healed soundly. There is no ankylosis of joint, and he has a certain amount of power over foot with his long extensor muscles, although his performance of dorsiflexion is not very brilliant. He has never been strong, being of nervous temperament, but he plays about the streets with other boys. A tracing of feet shows shortening on affected side of half an inch.

Pathological Examination.—Astragalus presented marks of former scraping. Interior of bone very fatty.

II.—CASE OF EXCISION OF WHOLE OF TARSUS, SAVE A PORTION OF OS CALCIS, ELEVEN MONTHS AFTER OPERATION.

By Dr. Edington.

W. C., æt. 8 years, came to Central Dispensary in January, 1896, with disease of tarsus on left side. He had been struck on the ankle with a brick four years previously, and this

had been followed by swelling. There was subsequently a "gathering" which "broke." He underwent operative treatment in one of the infirmaries on several occasions, but the trouble always returned after more or less interval.

The condition of affairs, when I saw him at the Dispensary, was as follows:—On inner aspect of left foot was a sloughy undermined ulcer over the head of the astragalus, and above this, the cicatrix from a former operation. Above and in front of ulcer was a small scab. The dorsum of the foot was the seat of a smooth swelling, suggestive of disease of tarsal joints with possible implication of tendon sheaths, and there was decided tendency to "dropping" of the foot. Leg muscles were markedly atrophied, and the malleoli in consequence stood out very prominently. No appearance of implication of ankle-joint. General condition not good, delicate-looking, and flushed cheeks.

He was kept under observation for a fortnight, when the discharge from the ulcer was found to be pretty profuse, and on 1st February he was put under chloroform and the ulcer scraped. The diseased tissue extended forwards under the skin to first metatarsal base, and also downwards into the sole. The wound was stuffed with gauze. His progress was satisfactory, but was interrupted by a feverish attack with vomiting a fortnight after the operation. After administration of castor-oil he was quickly well of this. The wound was closing well, but in March the swelling over dorsum increased, the skin became reddened, and an acute abscess was opened in front of ankle-joint, and apparently in connection with that joint and extensor tendon sheaths. The condition of affairs did not improve, and I determined to open the parts up freely.

On 2nd May, 1896, Dr. E. Arthur Gibson administered chloroform, and a transverse incision was made from tip of external malleolus across front of ankle to sinus below, and in front of internal malleolus. The soft parts were reflected upwards and downwards, and the astragalus was found to have its head buried in tuberculous granulation tissue (synovial), which also partly obscured the scaphoid. These two bones were removed together, when tuberculous changes were observed in neighbourhood of calcaneo-astragalar interosseous ligament. The cuboid and cuneiform bones were next removed, along with base of second metatarsal bone. A horizontal slice was taken off anterior part of os calcis, so as to get rid of diseased interosseous groove, when the cancellous tissue showed a small yellow spot surrounded by a congested

zone. The whole interior of the os calcis was therefore cleared out. The ankle-joint was unaffected, as were the tendon sheaths, but under these was a mass of tuberculous tissue on dorsum of scaphoid. Os calcis packed with crystallised iodoform; cavity between remaining bones stuffed with gauze, and wound was sutured closely, save where gauze projected at either end. The cut tendons and nerves were left ununited. In a few days the lower lip of wound became gangrenous and stitches were removed, and the cavity treated as an open wound and allowed to granulate. The articular surfaces of tibia and fibula, and posterior astragalar facet of calcaneum remained free from granulations for three and a half weeks, at end of which time buds made their appearance through the cartilage.

Five months after the operation the cavity had closed, but both upper and lower skin edges had curled in, forming a furrow separating lower end of leg-bones from dorsum of foot for about a quarter of an inch backwards. Thus, not even cicatricial continuity of long extensor tendons could be obtained, and the toes were extended by the extensor brevis alone, while the opposing surfaces of the furrow were excoriated by the constant movement of one upon the other.

He was again put under chloroform (14th October, 1896), and two parallel incisions down to the bone were carried down vertically from leg to dorsum of foot. The ribbon of skin (about an inch broad) and cicatricial tissue between the incisions was then raised from the subjacent bones. The incisions were sutured closely. It was hoped that by fresh granulations forming, the extensor tendons and tibialis anticus might regain some purchase on the foot; and the desired end was attained to a slight degree.

Up to the present (2nd April) he has been forbidden to walk,[1] but testing him at the Dispensary has given satisfactory results. These may be summarised:—

1. The foot is shorter than its neighbour by $1\frac{3}{4}$ inch. It is also half an inch less in breadth across heads of metatarsals.
2. Metatarsus freely movable on os calcis.
3. Calcaneum freely movable on leg-bones.
4. Power of dorsiflexion is sufficient to keep the toes from knocking on the ground.
5. He walks chiefly on os calcis, and on fifth metatarsal in its whole length; the remaining metatarsals bear less of the weight, and the first is altogether off the ground. He walks with a hardly perceptible limp, and leg-bones are seen to pass

[1] Since the above was written patient has been using the part freely, and without bad result (12th June, 1896).

down between os calcis and metatarsus when weight is brought on them, while they rise when the weight is removed, thus showing that a certain amount of spring is still present in the foot.

Pathological examination of bones removed from this case was made by Dr. A. R. Ferguson, with the following result:—"Tuberculous cavities in cuboid, internal and external cuneiforms; foci of disease in middle cuneiform; astragalus and scaphoid soft and friable; extensive affection of synovial membranes."

Note.—In both this and the previous case sensation on dorsum of foot is perfect.

Dr. Renton expressed his entire sympathy with Dr. Edington's procedure in dealing with these two cases. He believed that it was sound practice to prefer conservative efforts rather than amputation in cases of tuberculous disease of the bones of the foot in children.

Mr. H. E. Clark was not disposed to dissent from the view in favour of partial operation rather than amputation, though such practice might well, he considered, be carried too far. The difficulty of completely eradicating all tuberculous foci was often great, and when repeated operations were necessary it became a question whether it was worth while to subject the child to a continued risk and to more prolonged convalescence, when amputation would promptly and certainly remove the whole of the disease, and the patient could be provided with a serviceable foot by the instrument-maker. He recognised the sentimental objection to amputation, and admitted that this should not be neglected in the discussion of the question.

III.—ABDOMINAL SECTION FOR RUPTURED GASTRIC ULCER.

By Dr. Renton and Dr. Snodgrass.

Dr. Renton read notes of a case which he had seen with Dr. Snodgrass. The patient was seized with pain in the abdomen accompanied by collapse. On nearing the bed one could hear the heart causing a splashing sound, and on listening over the upper abdominal region with the stethoscope the splashing was very distinct. She complained of pain on each side of the neck, and looked ill. The abdomen was not much distended, and the area of liver dulness was not diminished. She suffered from mitral disease, and was very anæmic.

Dr. Renton advised that the abdomen should be opened. The

operation discovered no evidence of rupture of the stomach or of any other organ, so the abdomen was closed. The splashing sound continued, and a fine needle was passed through a lower rib interspace, but no fluid was obtained. The patient died, and Dr. R. M. Buchanan, who made the *post-mortem*, found that the upper end of a dilated stomach was closely adherent to the diaphragm and formed a cavity into which an ulcer had given way. This clearly showed the cause of the symptoms and the very doubtful possibility of dealing with such a condition.

IV.—ABDOMINAL SECTION FOR RUPTURED GASTRIC ULCER.

By Dr. Renton and Dr. Adamson.

Dr. Adamson and Dr. Renton read notes of a case of abdominal section for ruptured gastric ulcer, and showed the patient, who is now quite well.

In this case Dr. Adamson saw the patient at 9 P.M., and found her suffering from intense pain in the abdomen with a board-like feeling over it, slight superficial gurgling, intense pain in the neck on both sides, and a previous history of stomach trouble. In these circumstances he advised her removal to the Western Infirmary, where, in Prof. Buchanan's absence, Dr. Renton, assisted by Dr. B. Buchanan and Dr. Carslaw, opened the abdomen and found a ruptured gastric ulcer on the anterior wall; this he pared and stitched, and washed out the abdominal cavity. The patient made a good recovery.

Dr. Renton spoke strongly on the great importance of the operation being performed as soon as possible after the rupture.

Dr. Adamson drew attention to the symptoms of ruptured gastric ulcer, and explained some of the reasons for these symptoms, more particularly with regard to pain in the neck.

V.—NOTES OF SURGICAL CASES.

By Dr. J. H. Nicoll.

Specimens from two cases of Paget's disease.

CASE I.—Miss C., æt. 60, sent to me by Dr. J. D. Smith on 3rd March. I removed the left mamma (the specimen), along with a number of cancerous glands from the axilla. The specimen is shown for two reasons.

1. The usual difficulty in the diagnosis of Paget's disease is that of distinguishing it from ordinary eczema. This case presents all the distinctive points—(*a*) The patient, a woman who was not suckling, had never suckled, and therefore "had no business to have" eczema of the nipple or mamma. (*b*) The chronicity of the disease. It has existed for eight years, and no treatment had in any way benefited it. (*c*) The edge of the diseased area of skin, as shown in the specimen, is sharp-cut and abrupt—not the more or less diffuse margin of an eczema. (*d*) The surface of the diseased area, 8 inches by 6 inches, is distinctly eroded in parts, and presented before removal the intensely raw-red appearance so characteristic of the disease. (*e*) The ultimate development of carcinoma in this case in the form of a hard mass under the areola and nipple, which latter has disappeared by ulceration, and of cancerous axillary glands.

2. The specimen has been preserved in formalin, which has of late been employed largely for preserving tissues in the hope of retaining their natural colour. The actual method employed in this specimen was the following (for which I am indebted to Dr. Jenkins, who had noted it in a German journal as one of the latest modes of employing formalin):—(*a*) Immersion for forty-eight hours (in the dark) in formalin, 250 parts; potass. acetat., 30 parts; potass. nitrat., 10 parts; water, 1,000 parts. (*b*) Transfer for forty-eight hours to alcohol (95 per cent), also in the dark. (*c*) Preserve in glycerine, 500 parts; alcohol, 100; potass. acetat., 30 parts; water, 1,500.

The effect has been to preserve the colour of the specimen fairly well, and, in all probability, the result will in time improve. Solution No. 2 bleached the specimen very markedly, and it has regained already to a considerable degree its original colour in solution No. 3.

Case II.—Mrs. C., æt. 62, sent to me by Dr. Hope in July, 1895. I removed the left mamma along with some cancerous glands from the axilla. This specimen shows an area of Paget's disease around the nipple of 3 inches by 3½ inches. The nipple, areola, and breast have been bisected, and the opposed cut surfaces show very well the extension of the disease down the ducts to the hard mass of cancer immediately under the nipple.

Both of these patients are at the present time well.

Case of strangulated interstitial inguinal hernia.

Mr. M., æt. 20, was seen by Dr. John Aitken on 8th March, and found by him to be suffering from a large strangulated

right inguinal hernia. The symptoms of acute strangulation had existed for nearly twenty-four hours. There was no history of any previous hernial swelling in the scrotum, but there had always been a small swelling in the region of the right inguinal canal, and there had never been a testicle in the right side of the scrotum.

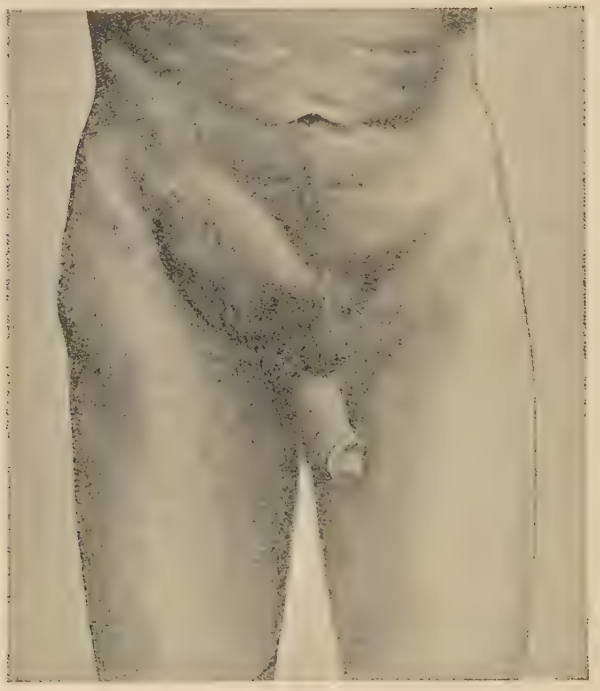

Plate (reduced) from Macready's "Treatise on Ruptures."

"Interstitial Hernia. The right half of the scrotum is absent, and the testis, which is very small, lies within the canal near the external ring. The external oblique is in front of the hernia. From a man, æt. 60."

The curved line represents approximately the dimensions of the hernia in the case of Dr. Aitken's patient, and the straight line the position of the incision made in operating.

Dr. Aitken administered chloroform, and reduced the hernia. The pain and vomiting ceased, and the patient next day returned to business. During the night of 10th March the hernia again descended, and early on the morning of the 11th Dr. Aitken was again summoned, and found the patient's condition much the same as on his visit on 8th March. For the second time Dr. Aitken gave chloroform and reduced

the hernia. All of it passed through the external ring, but Dr. Aitken missed the "gurgling slip" of successful reduction, and then observed that a large ovoid swelling of the abdominal wall had developed in the iliac, lumbar, and hypogastric regions. Further, the patient's pain and vomiting continued. Some hours later I saw him at Dr. Aitken's request. The condition was as described, but we were both discouraged to find considerable emphysematous crackling on palpation over the swelling.

I operated, cut through the skin and subcutaneous tissue, finding no emphysema, then through the external oblique. Between the external oblique and the internal oblique lay a large coil of small intestine tightly strangulated at the internal inguinal ring, through which it had emerged. The gut was very dark, but otherwise healthy. There was no sac discoverable. The cellular tissue between the two muscles in which the gut lay was distended by emphysema. I enlarged the internal inguinal ring and returned the intestine. I then removed an atrophied undescended testicle occupying the inguinal canal between the internal and external rings. This I have here. I then closed the internal ring, the wound in the external oblique, and, finally, the skin wound, all with gut sutures. The patient made a perfect recovery.

The case is brought forward to-night for two reasons—(1) It is in itself not a very common one; (2) there was a symptom not very easy to explain—surgical emphysema with apparently nothing to account for it.

The accompanying plate I have taken from Macready's beautiful series of plates in his *Treatise on Ruptures*. Except that in this case of Dr. Aitken's the man's age was 20, the hernia strangulated, and its size greater, the description of Macready's plate exactly conveys its features. What had happened on the occasion of the second reduction by Dr. Aitken was that the intestine, being expelled from the scrotum, had passed upwards through the external ring, had entered the space in the inguinal canal long occupied by the undescended testicle, had met this testicle and, failing to pass it and so reach the internal ring, had travelled up in the abdominal parietes separating the external and internal oblique muscles.

Vermiform appendix removed along with the walls of an abscess cavity which enclosed it.

Mr. M., æt. 40, four weeks ago called in Dr. Kennedy, who diagnosed appendicitis. There had been for a week previously

some pain in the right iliac region, which had become severe the day Dr. Kennedy saw him. The following day I saw him in consultation with Dr. Kennedy, and we had him without delay conveyed to the M'Alpin Nursing Home in an ambulance. When admitted his temperature was 101°, and the right iliac region so tender that accurate examination was not easy. Repeated enemata were given, and the patient put on milk diet. In three days the temperature was normal, and the patient felt so well that it was difficult to persuade him that an operation was necessary. At this time there could be felt a hardish area in the position of the appendix, and apparently of the size of a hen's egg.

A week after I first saw him I operated and removed what I have here—a thick-walled appendix with a perforation near its free border—and the walls of an abscess cavity which contained it, and some thin pus, the quantity of which could not be accurately measured, possibly about 3 drs. The patient has made an uninterrupted recovery.

The case has two interesting aspects—(1) It is always difficult to decide in a given case of subacute or relapsing appendicitis whether to operate or wait in the hope of there being no further trouble. In this case the temptation to wait was strong, the temperature had been normal for nearly five days, there had been no pain for the same period, on palpation there was but slight tenderness, and there remained but a small area of induration; and yet, on operating, this area is found to be an abscess cavity containing a perforated appendix. (2) When operations on perforative appendicitis were first becoming common a bold policy was pursued and advocated. Of late there has been a decided tendency to read the teaching of fuller experience as indicating more cautious procedure in operating, and most surgeons now are very careful not to disturb the abscess walls, where such fortunately exist, but to exacuate the contents, trusting to the undisturbed walls to prevent contamination of the general peritoneal cavity. In the present case this was impossible, and the bolder course had to be pursued. The abscess walls had no connection with the anterior abdominal wall and, therefore, extra-peritoneal evacuation of the abscess was impossible. The walls consist entirely of omentum and adhesions on the cæcum and appendix.

Encysted vesical calculus.

This is a uric acid calculus weighing 280 grs. The patient, a healthy young man, came into my hands five months ago. I decided to crush the stone. I found, however, that on

grasping it with the lithotrite I could not separate it from the bladder wall. I therefore performed suprapubic cystotomy, found the stone encysted in a shallow pouch in the base of the bladder, and removed it. I sutured the bladder, which healed by first intention.

There is in Scotland still considerable difference of opinion as to the relative merits of lithotomy and litholapaxy. But reference to recent surgical literature clearly shows that, in the opinion of those best qualified to judge, lithotomy is being relegated to the catalogue of operations now seldom performed. It would be easy to multiply quotations in proof of this; I give one only. Mr. Henry Morris, in Treves' recently published *System of Surgery*, writes of the treatment of vesical calculus —"Litholapaxy, as introduced by Bigelow and modified by Sir Henry Thompson and Guyon, is now the recognised operation for all cases (with few exceptions to be named presently) of vesical calculus in males." Statements more or less precisely similar will be found in nearly all the recently published surgical text-books—in the last edition of *Erichsen*, in *Moullin's Surgery, Keen and White's American Surgery*, and, indeed, in the whole field of recent surgical literature with few exceptions.

It is the case that several of our leading Scottish surgeons defend their continued preference for lithotomy on the ground that cases of stone are so comparatively infrequent in Scotland that it is impossible for a man to obtain sufficient practice in lithotrity to warrant his performing it in preference to lithotomy. My comparatively limited experience forbids me offering a very decided opinion. I therefore merely submit, in connection with the showing of this calculus, a statement of fact. During the past five and a half years I have operated on seventeen cases of stone in the bladder. I have had no death. Of the seventeen, fifteen were operated on by litholapaxy and two by lithotomy (suprapubic). Of these two, one is the case presented to-night. The other was the case of an old man operated on in the M'Alpin Home four and a half years ago, where Dr. Ritchie Thomson assisted me. There was a softish uric acid and phosphatic stone behind a much enlarged prostate, and after removing the stone I found the ureters so dilated from back-pressure that I was able to pass my forefinger into each.

At a meeting of this Society in November, 1893, I showed the *débris* of a stone (uric acid and phosphate), weighing 357 grs., which I had successfully crushed under cocaine.

Meeting XIII.—23rd April, 1897.

Professor M'Call Anderson, M.D., *in the Chair.*

I.—Notes on the Parasite of Malaria.[1]

By Dr. J. H. Teacher.

From its wide distribution, and the serious effects which it produces, ague has always been regarded as one of the greatest scourges of the human race, and its nature and cause have been the subject of much speculation. In 1880 Laveran discovered the organism which has now been recognised, practically universally, as the cause of malaria in all its extremely varied manifestations. Since that date the parasite has received a great deal of attention, and the main features of its life cycle within the body and their relation to the clinical and pathological phenomena of the disease are pretty well worked out. As to its life without the body we know nothing, all attempts at artificial culture having been failures, and no one having been able to distinguish it in its free state.

The parasite belongs to the order protozoa. The exact zoological position, and the question whether the organisms causing all the different forms of malarial disease belong to a single species whose evolution is variable, or to several different species, are still *sub judice.* The latter view is the one more generally held, and I agree with it.

To quote from Mannaberg's manual—"The malarial parasites are unicellular living organisms, which in their early forms show a more or less lively amœboid movement." This becomes less active as they grow older, and is finally lost altogether.

"As a rule, the immature parasites have a flattened disc-like form, which, according to whether it is at rest or in movement, may have a circular, oval, smooth-edged, or completely irregular shape."

"The mature parasites are globular or sometimes flattened." The predominance of the flat form is probably due to the relation of the parasite to the red corpuscle, which has a flattened form.

[1] These notes were read in connection with a demonstration of malarial blood preparations obtained by Dr. Teacher during a recent residence in the south of Spain.

As to the relation of the parasite to the red corpuscles, the immature forms for a time swim free in the blood-stream, then become attached to and lie on the corpuscles, more or less embedded in their substance. The mature ones are actually inside the corpuscles, and they can occasionally be seen to burst out of them with a suddenness which is very surprising to the observer.

Reproduction is by simple segmentation, or spore formation. The parasites are as a rule isolated, which makes them rather difficult to find.

All the forms of the parasite live on the substance of the corpuscle which they inhabit. As a product of digestion of the hæmoglobin are formed granules of brown pigment (melanin), which accumulate in the protoplasm of the animal, and are later deposited in various parts of the body. These facts explain two of the leading features of ague—the anæmia which is due to the actual destruction of red cells going on as long as there is a parasite alive and active in the body, and the pigmentation of the internal organs which you may observe in the section of brain shown to-night.

The third leading feature of the disease, the most striking manifestation of all, the periodic paroxysms of ague, is related to the process of reproduction. The animal completes its life cycle in a certain time, which is different in the different species. It is completed by the act of sporulation, and the commencement of the paroxysm coincides more or less exactly with the liberation of the spores from the parent into the blood-stream.

The parasite in the fresh state appears as a clear body, usually containing pigment, enclosed in a red corpuscle. Practically all except the youngest forms contain granules of the above mentioned pigment, which are, as a rule, in active motion.

Certain of the full-grown parasites show another very striking form of movement—viz., the protrusion of flagella, which wave vigorously to and fro in the blood. The flagella appear some time after the shedding of the blood, and are supposed to have to do with enabling the animal to change from the parasitic to the free state.

The parasite is, as a rule, more easily found in the fresh state, and is then more interesting from presenting the phenomena of life. On the other hand, staining is necessary to differentiate its structures, and also for the certain recognition of some of the small forms. In the specimens shown here hæmalum is the stain used. By its aid we are able to see that

each parasite is composed of a nucleolus which stains well, a nucleus which remains unstained, and a protoplasmic mantle which stains slightly. In only one form—certain of the crescents—is there any enclosing membrane visible.

Malarial fevers may be classed as regular and irregular, and the parasites divide naturally into two corresponding main groups:—

(1) Parasites which produce the regular fevers—tertian, quartan, and certain quotidians. These fevers are comparatively mild, yield readily to quinine, and tend to run a regular course free from grave complications. So regular are they, and so invariable are their relations to the development of the parasites, that the course of events in a given case can be accurately foretold from simple microscopic examination of a drop of blood from the finger.

(2) Parasites which produce irregular fevers, tending to grave, even fatal complications, yielding but slowly to quinine, and very prone to recurrence. They are distinguished by the production of a special form known as the crescentic body. The fevers of this group are commonly alluded to as the pernicious or malignant fevers.

To turn now to the specimens. In the first class are the tertian and quartan parasites. They are illustrated by three specimens. Of these, the one which best serves to illustrate the life cycle of a malarial parasite is the tertian specimen. The tertian parasite completes its life cycle in the blood in forty-eight hours. It often happens that there are present two generations which come to maturity alternately, at intervals of twenty-four hours, producing a quotidian ague of tertian origin. Three generations of quartan can similarly produce a quotidian fever. This is the manner in which all quotidians except those of the irregular class are produced.

The specimen was taken from a case of double tertian ague about ten minutes before the onset of the shivering, and it shows representatives of four stages of the parasite in one field.

It is a distinctive feature of the tertian parasite that the infested corpuscles are enlarged and pale. It is a point of considerable service in searching for the parasite, the enlarged corpuscle catching the eye readily. The parasites in the field are a sporulating body with central mass of pigment and fourteen spores around it, enclosed in a thin rind of pale corpuscular tissue. One of the spores is already being detached. Beside the sporulating body is another enlarged corpuscle in which is a young animal, the progeny of a

sporulator which has already broken up, and whose spores have already found hosts. It shows nicely the deep blue nucleolus, clear unstained nucleus, and pale blue protoplasmic mantle. Lower down is a large parasite almost filling a corpuscle—one of the first generation which has not gone on to sporulation, a so-called sterile body—and beside it is a half-grown parasite of the intermediate generation, which would have reached maturity and produced another paroxysm in about twenty-four hours.

The life cycle which the specimen illustrates is as follows: —The sporulating body breaks up and the young spores are set free in the blood, giving rise, in what manner we do not exactly know, to a paroxysm. They swim about free for a time, and then attach themselves to corpuscles and commence to grow. At this stage they appear in the fresh state as little clear spaces in the corpuscle, with a rapid amœboid movement and a bright refractive point, which is the nucleolus. A few hours later granules of pigment, the product of digestion, appear. In twenty-four hours the half-grown stage is reached. The parasite fills about half of the corpuscle; its shape, in consequence of the amœboid movements, is often very fantastic; and it contains numerous granules of fine pigment, which are in motion. In thirty-six hours from the start the parasite is full-grown, and the changes leading to sporulation begin.

The pigment loses its active movement and begins to draw to the centre, and in the stained specimen the nucleolus is found to have disappeared, the chromatin having become diffused throughout the parasite. A few hours later several blue blotches would be seen, the nucleoli of the future spores. Gradually the spores become quite distinct, and finally the corpuscle bursts and they are set free.

Sporulation—*i.e.*, breaking-up of the sporulators—begins about three hours before the onset of the rigor, and may continue for several hours after it. Only a small proportion of the parasites sporulate, the rest of the generation remaining as sterile bodies which escape from the corpuscles and become free. It is this last form which shows flagella. Sporulation in the tertian and quartan commonly occurs in the peripheral blood-streams.

The changes in the other species are similar. In the quartan they occupy seventy-two hours.

The parasite of the quartan differs from the tertian in being much less active in its movements. The pigment is coarser, and the corpuscle is not enlarged. The spores are larger and

fewer in number—8 to 10; a sporulating and a two-thirds grown parasite are shown.

Of the second group, the malignant parasites, three species seem to be well recognised—pigmented quotidian, unpigmented quotidian, and malignant tertian. This division is probably only provisional. They are all characterised by their small size; and by the fact that sporulation occurs in the internal organs, so that this phase is almost never found in the peripheral blood, and has to be obtained by puncture of the spleen, or *post-mortem*. The size of the full-grown form is only about one-third to one-half that of the red corpuscle. The spores are small, and only four or five in number. They all produce crescents, which in all forms are pigmented. These bodies resist quinine very strongly, persisting in the blood for weeks in spite of large doses of it. On the slide they turn into round bodies which project flagella, the supposed significance of which has already been mentioned. Their appearance indicates gravity of the affection. The fevers of this class tend to recur time after time. The fever is irregular or continuous, and is attended by symptoms of extreme gravity—profound exhaustion and anæmia, coma, and frequently a fatal result. Three specimens are shown, exhibiting (1) the small immature form from the finger blood, very similar to the tertian spores; (2) a crescent; and (3) a section of brain from a case of malignant ague in Sierra Leone, prepared from tissues given me by Dr. Thin, of London. It shows the small blood-vessels of the cortex filled with corpuscles, most of which are infested by small parasites with rounded masses of pigment, which suggests that the changes leading to sporulation had commenced. The parasites are only about one-third the size of the corpuscles. The latter are not very well preserved, and their outlines are indistinct.

The Importance of Microscopic Examination in Diagnosis and Treatment.—It is not necessary for the simple tertians and quartans as a rule. In a malarious district ague dominates the whole of the diseases of the community. Accordingly all sorts of cases turn up as "fever." For instance, consumption will turn up as "quotidian fever of several months' duration." Here it is probably the stethoscope rather than the microscope which makes the diagnosis. Sometimes the microscope is very useful in surgical cases. A few days after an injury in a patient who has been incubating ague, there is a rigor, the temperature flies up, there is pain in the bones and joints and in the wound itself. Examination of a drop of blood speedily

allays the alarm of pyæmia, and a dose of quinine dispels the unpleasant symptoms.

It is of most importance in the irregular fevers. Cases occur which simulate sunstroke, enteric fever, pneumonia. Again, I have seen a case where the only complaint was of feeling unwell, and the symptoms were extreme exhaustion and anæmia. There was no fever. Another case, in a child, from the extreme depression suggested diphtheria. The only way of arriving at a speedy and certain diagnosis in these cases was by examining a drop of blood, when some form of malignant parasite was discovered.

The cases that are seen at home are usually of the irregular class. On the other hand, there are many cases in which there is, with a history of having had ague abroad, a tendency to febrile attacks on small provocation. These are very frequently not due to ague but to the weak state resulting from it, and it is of much value to have a negative decision microscopically, when the large doses of quinine which would be appropriate in the presence of the parasite may be with advantage omitted.

Finally, the discovery by Golgi of the relation of the life cycle to the paroxysms, and that the spores are more readily killed by quinine than any other stage of the animal, has taught us the ideal time at which to give the drug—viz., three or four hours before the expected onset of the paroxysm, in order that the spores may be born into blood saturated with quinine. In those cases where the fever is of the irregular type, of course this rule does not apply so strongly. The indication there is to get the quinine in as soon as possible and in one large dose, hypodermically if necessary.

II.—TWO CASES OF BERI-BERI.

By Dr. Geo. S. Middleton.

On 26th February, 1896, two Lascars were admitted into my ward from the s.s. *Britannia*, which had just reached Glasgow from Bluefields, Nicaragua. Both suffered from great weakness, especially of the legs, and from œdema. Five other cases of the same disease had occurred on board the ship, of whom three had been landed in America and two had died at sea. My two patients were the last to become affected, and sickened within a few days of each other, about three weeks prior to admission.

They were both young men (25 and 23), and both were

occupied as firemen. While the one presented only a slight unsteadiness in his gait, the other could scarcely walk a step or two even when supported on both sides, and not at all alone. The two cases differed greatly in severity, but presented practically the same symptoms.

There was weakness of the muscles of the limbs, more marked in the legs than in the arms. Sensation in the legs, especially below the knees, was slightly defective, and in the less severe case there was slight analgesia there. The limbs were tender on pressure, and there was a subjective sensation of constriction about the ankles, knees, and waist, with, at the commencement, some tingling in the feet. The reaction of degeneration was not definitely obtained in either case. The knee-jerks were quite absent, while the plantar reflexes were present. There was no ankle clonus. There was no muscular atrophy, beyond what might be accounted for by a chronic illness; in particular, there was no wasting of any special group of muscles at any time.

Œdema was present in both patients on admission; but while slight and of short duration in the one, in the other it was severe, and gradually spread up the thighs to the trunk, and even involved the arms, which became greatly swollen. In the severe case there was also at a later stage evidence of fluid in the pleural cavities.

In neither case was there any enlargement of the cardiac dulness. In the slighter case the action of the heart was good, but in the more severe case cardiac action was very feeble, and on one occasion the patient had a severe attack of syncope. There was no murmur.

The urine tended to be defective in amount, especially in the more severe case, where it at first was very scanty; latterly in both it was abundant. In both cases albumen was frequently, but not always, present; generally only a mere trace, but sometimes in the severe case more abundant. In both, too, hyaline and granular casts were occasionally found, more numerous in the severe case.

The temperatures were generally normal, but in each case there was pyrexia for three or four days, traced in the one to a gumboil, but of unknown origin in the other.

The blood in both cases presented a considerable diminution in the amount of hæmoglobin, while the corpuscles appeared to be more numerous than in normal blood.

During convalescence both presented desquamation, beginning in the feet and extending over the whole of the body.

The one patient rapidly improved, and was soon allowed

to get up; the other was very ill for a time, and had a slow convalescence.

They were dismissed on 9th May, 1896, practically well, but without knee-jerks.

The combination of paralytic symptoms with œdema, and their occurrence in two Lascars some of whose shipmates had been similarly affected, led me at once to diagnose these as cases of beri-beri. More prolonged observation of them tended to throw doubt on this diagnosis, for reaction of degeneration and atrophy are said to be essential symptoms, and albumen is never present. In neither of these cases could the reaction of degeneration be affirmed to be present (possibly from defective examination), and there was never any muscular atrophy, whilst albumen was generally present in their urine, possibly from a prior renal disease. Failing, however, to refer this combination of symptoms to any other cause, I upheld the diagnosis of beri-beri, and was corroborated in this by my friend, Dr. George Marshall, who has perhaps seen more of this disease than any of us.

Further confirmation of the diagnosis will be given by Dr. Walter Hunter's report of the bacteriological investigations which he very kindly made. He has isolated the microbe of beri-beri described by Pekelharing and Winkler, and thus has the credit of being the first, as far as I can learn, who has succeeded in doing so away from the countries where the disease is endemic.

III.—THE BACTERIOLOGY OF BERI-BERI.

By Dr. W. K. Hunter.

The question of the bacteriology of beri-beri is one which has for some years past created much interest and discussion.

Beri-beri, as Dr. Middleton has told us, is a multiple peripheral neuritis, similar to alcoholic or arsenical neuritis and in some respects to diphtheritic paralysis.

As far as one understands a neuritis of this kind, it is due to some poisonous substance circulating in the blood. In alcoholic neuritis alcohol is the poison; in diphtheritic paralysis the poison is a toxin generated in the tissues, the result of the vital activity of a specific micro-organism.

The problem therefore which presents itself to us is—What causes the neuritis of beri-beri? Is it a poison passing directly from without into the circulation in the form of unwholesome food or impure water? or is it a toxin formed in the blood or

tissues of the patient by a specific micro-organism growing there?

Both these theories have found exponents; but it is along the lines of the latter that we have sought for an explanation of the neuritis in our two cases, and therefore our search has been for what we may call the specific "microbe" of beri-beri.

Pekelharing and Winkler, the two Dutch physicians Dr. Middleton has referred to, some years ago isolated such a micro-organism. This, they say, is a white staphylococcus with similar morphological appearances to the staphylococcus pyogenes albus, and with the pathogenic property that when injected into rabbits it causes a multiple peripheral neuritis. It was with this in mind that Dr. Middleton asked me to examine the blood of his two patients. This was accordingly done, with the result that, by the aid of a one-twelfth oil immersion lens, one could see in the blood-serum numerous small micro-organisms in the form of cocci, some solitary, some in pairs, some forming short chains, and all moving freely about in the field of the microscope. Following this, tubes of various culture media were at different times inoculated with blood from the two patients. In eight of these tubes we obtained growths of a white staphylococcus precisely similar to that described by the Dutch observers.

Injections from these growths were then given to rabbits. The animals subsequently showed unmistakable signs of paralysis, and on *post-mortem* examination their nerves were demonstrated to have the characteristic appearances of peripheral neuritis. The micrococci could again be cultivated from the blood of the rabbits injected. So that we have complete evidence that in the circulation of our two patients there was a micrococcus which can produce in rabbits a disease similar to beri-beri and which we may fairly claim to be the specific "microbe" of beri-beri.

It is with considerable satisfaction that I make this statement, for the observations of Pekelharing and Winkler have not formerly found much definite confirmation, but, on the other hand, have been subject to a very great deal of adverse criticism. There is much more that I might say on the bacteriology of beri-beri, but as it is mostly detail appealing more to those specially interested in bacteriology, I shall reserve it for publication. In the meantime what is of interest to the physician is that we have found in the blood of our two cases of beri-beri the white staphylococcus of Pekelharing and Winkler, and we have proved its pathogenic properties.

IV.—A CASE OF MYXŒDEMA COMPLICATED WITH CARDIAC DISEASE.

By Dr. R. Barclay Ness.

The patient, Wm. C., aged 54 years, was admitted to the Royal Infirmary, Glasgow, on 28th June, 1895, and it is with Dr. Middleton's kind permission that I publish an account of the case.

I saw the patient occasionally before his admission while attending his son, who died of phthisis pulmonalis, and was so struck by his appearance as characteristic of myxœdema that I advised him to seek admission to the hospital. The case proved rather an unusual one, being complicated with organic heart disease, and has some special interest in the light of the *post-mortem* examination.

The patient was a little spare man weighing 8 st. 7 lb., having the characteristic appearance of one affected with myxœdema. The expression, as may be judged from Fig. 1 (p. 330), reproduced from a photograph, was "apathetic" or "stolid;" the face pale, with a slight flush on each cheek; the eyelids œdematous, and the margins affected with blepharitis; the beard bristly and thinly set; the teeth few in number, and loose; the soft palate œdematous; the hair of the scalp dry, and the scalp itself scurfy; the skin over the whole body dry and harsh, especially on the hands and forearms, where it was much wrinkled. This is well seen in Fig. 2 (p. 331). True œdema, though very slight in extent, was detected over the ribs and sternum, sometimes also in the feet; but in this latter situation it soon disappeared with rest in bed. The character of the voice was peculiar, being slow, deliberate, and monotonous, at the same time weak and husky. The thyroid gland could not be felt with certainty.

These signs of myxœdema were associated with failure of memory, marked slowness in thought and action, and with the placid temperament so characteristic of this disease. Other well recognised features of the disease were found in the subnormal temperature and in the condition of the blood. During the first ten days after admission to the hospital, when the patient was under no medicinal treatment, the temperature remained distinctly below normal, the highest record being 97·8° F. Examination of the blood revealed a deficiency both in respect of hæmoglobin and the red corpuscles. These were present to the extent only of 52 per cent and 64 per cent respectively.

Dr. Fullerton kindly furnished a detailed report on the condition of the throat, and Dr. Rowan a similar report on the condition of the eyes.

Without giving these two reports in full, it may be stated that Dr. Fullerton found, besides a peculiar waxy and œdematous appearance of the mucous membrane of the mouth, soft palate, and posterior wall of the pharynx, an unusual condition of the epiglottis. It lay horizontally backwards, and was compressed on itself from side to side. In this position it prevented a proper view of the anterior part of the larynx. The posterior part, however, could be well seen, and it presented a strikingly pale appearance. The mucous membrane around the arytenoid cartilages was appreciably thickened, and had the peculiar pale waxy and œdematous character already noticed in the soft palate and pharynx. The movements of the vocal cords were normal.

The chief abnormalities noted in Dr. Rowan's report on the condition of the eyes were as follows:—While the colour-fields in both eyes were normal, in the right there was some confusion as to small coloured discs in the centre, possibly due to the influence of tobacco. Both eyes on ophthalmoscopic examination were found to be hypermetropic. Both discs were pale, and the edges indistinct. This was associated with a granular condition of the pigment in their neighbourhood, a condition which extended for a short distance from the edges of the discs, mostly in an upward direction. The vessels were normal. The eyesight, the patient stated, had been defective for many years.

The sense of hearing was not so acute on the right side as it was on the left; but the examination by the speculum was negative on account of the presence at the time of examination of an unnatural amount of cerumen.

The senses of taste and smell were normal. Common sensation and the senses of pain and temperature were normal, so also were the patellar tendon and plantar reflexes.

The above facts have been grouped together with special reference to the diagnosis of myxœdema, the origin of which condition, judging from the imperfect history given by the patient, and the examination of certain photographs in his possession, must have been within ten years previous to his admission into the hospital.

There is, however, another element in the case which will now be briefly considered. While the patient complained on admission of general weakness and lassitude—a usual com-

plaint of those affected with myxœdema—he complained also of another very definite symptom in the form of breathlessness on the slightest exertion. This was associated with a history of true œdema of the feet, and of bronchitis, the former of much earlier origin than the latter.

On further examination of the patient evidence of a distinct cardiac lesion, probably of rheumatic origin, was detected. The cardiac dulness was not enlarged, measuring only $3\frac{1}{2}$ in. transversely. The apex beat was in the fifth intercostal space in the nipple line. In the region of the apex on auscultation, however, a distinct double murmur was heard, V.S. and V.D. in rhythm. Both elements were soft, blowing, and rather superficial in quality. The V.D. portion was separated from the first sound by a short pause, though, as stated below, it should be noted that Dr. Middleton, on one occasion at least, suggested the presence of an A.S. murmur, but of this there was merely a suspicion, and only at times. On departing from the apex the two murmurs (V.S. and V.D.) became extremely faint. At the foot of the sternum the V.D. could only just be heard. There was no murmur at the base of the heart. The second sound was not unduly accentuated at either the aortic or the pulmonic area.

There was no support given by the character of the pulse to the view that the V.D. was of aortic origin. The pulse was regular, numbering on an average only 56 per minute, while the sphygmograms showed rather an increase in arterial tension than anything indicating aortic regurgitation.

The examination of the lungs revealed nothing abnormal beyond the presence of a few fine moist râles at both bases. Associated with this there was slight cough and a little thin mucous expectoration.

The examination of the abdomen presented nothing abnormal beyond slight tympanitic distension. The liver was not enlarged. The bowels were constipated.

The urine on admission was acid, muddy, amber in colour, having a specific gravity of 1024. It contained a trace of albumen, but no sugar. The average quantity passed during the first ten days after admission was 20 oz., while the average amount of urea daily excreted, estimated on five occasions, was 252·6 grains.

As it is impossible in the space at my disposal to give a detailed account of the progress and treatment of the case, a short statement will be made of the facts bearing specially on the treatment by means of thyroid gland.

This treatment was begun on 8th July, one tabloid

FIG. 1.
Patient (Wm. C.) showing physiognomy of myxœdema. (*From a photograph.*)

(B. W. & Co.) containing 5 grs. of thyroid being administered daily. This was continued without any untoward

FIG. 2.
Back of hand—showing excessive furrowing of the dry harsh skin. (*From a photograph.*)

symptoms appearing until the 15th July, when two tabloids were given daily. On that day, however, the temperature rose a little higher than usual—viz., to 98·8° F.—and on the

two following evenings to 99·4° F. The patient felt rather ill, and the thyroid was stopped on the 17th July.

Examination of the lungs revealed signs of consolidation at the left base. The temperature continued elevated for ten days, but never higher than that noted above, when it again subsided to subnormal under the influence of stimulant expectorants and cardiac tonics. The condition at the base of the left lung, however, never entirely cleared up.

On 1st August two tabloids were again given daily, but these had only been continued until 7th August, when the temperature rose to 99° F., and the patient complained of breathlessness and a sense of oppression over the breast. Treatment by thyroid was therefore suspended, and cardiac stimulants and tonics prescribed.

It was at this time that Dr. Middleton indicated a strong suspicion of the presence of an A.S. murmur. There was also noted by him marked irregularity of the heart's action and reduplication of the second sound. He also detected, in the left lateral region, friction associated with dulness and moist râle at the base of left lung; moist râle was heard also at the base of right lung.

The symptoms of which the patient at this time complained gradually disappeared, and after the 9th August the temperature again became subnormal, and remained uninterruptedly so until the 26th. The condition of the heart and lungs remained practically the same.

Four days previous to above date, that is on 22nd August, the thyroid was again administered in the same doses as on last occasion, and with practically the same result. It was therefore stopped a week later, and general treatment in the form of stimulants and cardiac tonics adopted.

Believing that the thyroid had some influence in determining these febrile disturbances, small doses of one half tabloid were given daily on two subsequent occasions, viz., on 14th September and 21st October.

On the first of these occasions, five days after the beginning of the administration, the temperature rose to 101·4° F., the highest that it ever reached during the whole time of his illness. On the second of these occasions the temperature did not become much elevated, but the patient felt worse after taking the tabloids, and so they were stopped three days later.

Such was the experience of the administration of the thyroid. Whether in all cases the elevated temperatures and the cardiac and respiratory distress were due to the action of the thyroid

it is difficult to say, because there was on the first occasion a distinct inflammatory condition at the base of the left lung, and on other occasions, particularly towards the end of September when he was suffering from a subacute attack of rheumatism, the temperatures were elevated and yet no thyroid was being administered.

With regard to other effects possibly produced by the administration of the thyroid, the following facts may be noted. Comparison of his weight at the time of admission and on 14th August showed a loss of 9 lb. He became much thinner, and the œdematous condition of the eyelids became less apparent. The skin of hands and arms became more soft and pliable, while slight desquamation could be detected in some parts of the body.

The daily quantity of urine, and the urea it contained, increased, as the following figures will show:—Between 1st and 5th July, inclusive, no thyroid was administered, and the average daily quantity of urine passed was 20 oz., and the average daily amount of urea excreted 252½ grs. Between 8th and 13th July, inclusive, the patient was having one tabloid daily. The average daily quantity was then 30⅓ oz., and the urea 322½ grs. Again, between 8th and 21st August, inclusive, the patient was not having any thyroid, and the average daily quantity of urine excreted was 26⅓ oz., and the urea 292½ grs. Between 22nd and 29th August, inclusive, two tabloids were given daily, and during that period the daily quantity of urine increased to 35½ oz., and the urea to 340 grs.

Towards the end of October the patient complained much of flatulent distension, and tenderness in the hepatic region. The temperatures on the 28th and 29th rose to 99·6° F. and 100·4° F. respectively, while blood and tube-casts as well as albumen were found in the urine.

During November the patient gradually got worse. By the 22nd, orthopnœa and sleeplessness became extreme, and for the latter symptom such remedies as paraldehyde, sulphonal, chloral, and chlorodyne were tried at intervals with only temporary relief.

On 10th December the heart seemed to have enlarged, as the cardiac dulness measured then 5½ inches as compared with 3½ inches on admission. The V.S. murmur was then audible but not the V.D. A V.S. murmur in the tricuspid area was noted for the first time. The second sound at the pulmonic area was accentuated.

The patient gradually became weaker, and died on 17th December, 1895.

The *post-mortem* examination was conducted by Dr. Charles Workman on 19th December. The following facts are taken from the Pathological Journal:—

The body was well developed, but somewhat emaciated. Œdema was present in both the hands and feet.

On opening the thorax the surfaces of the pericardium were adherent from old pericarditis. The left lung was also very adherent to the chest wall; also the right, but to a much less extent.

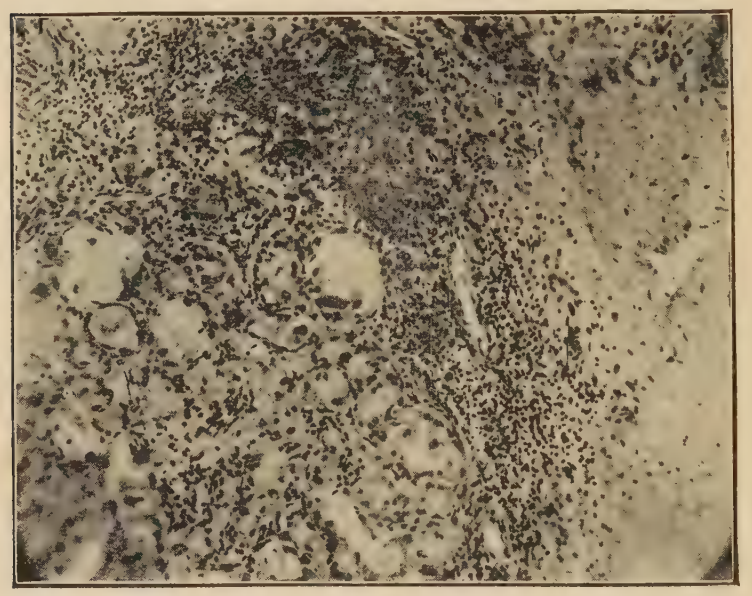

FIG. 3.
Section of thyroid gland in myxœdema.
(*From a micro-photograph by Dr. Leslie Buchanan.* × 250.)

The heart weighed 18 oz. The aortic valve was incompetent, while the pulmonic was competent. On opening the heart, the aortic cusps were found to be thickened and two of them adhering together. The mitral valve was almost closed, admitting only the point of the little finger. It was conical in shape, and terminated in a slit surrounded by a thickened margin. The tricuspid valve admitted three fingers easily. The cardiac muscle was very pale and soft. The left ventricle was somewhat dilated, and the whole organ was slightly larger than normal.

The right lung weighed 32 oz. and was voluminous. Its borders were very emphysematous, and the posterior part was œdematous. The left lung weighed 30 oz., was much smaller in size, and was also œdematous. In its lower lobe there was an area of consolidation.

The œsophagus was somewhat congested, but otherwise presented a healthy appearance.

There was marked injection and pigmentation of the follicles at the root of the tongue, and in the tonsils. The

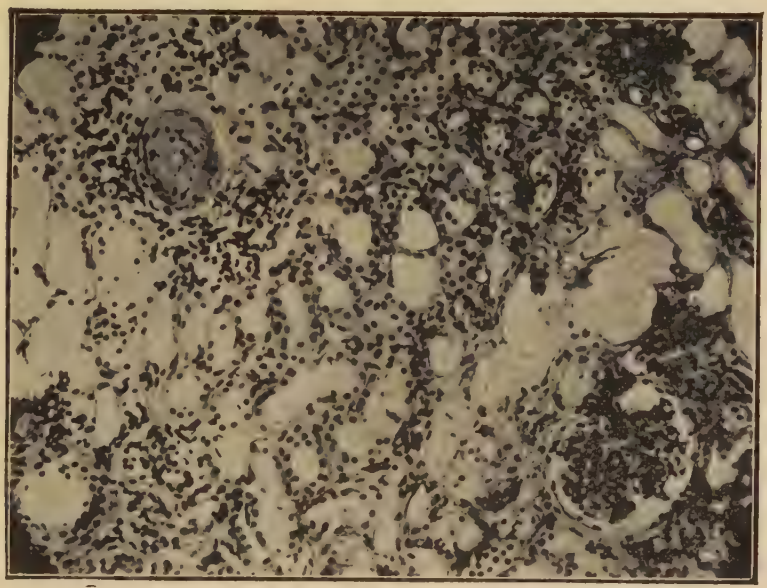

FIG. 4.

Section of kidney in myxœdema.

(*From a micro-photograph by Dr. Leslie Buchanan.* × 250.)

epiglottis stood out very prominently, and was compressed somewhat from side to side, being curved, with the concavity directed backwards. The mucous membrane, especially over the arytenoid cartilages, appeared slightly thickened and translucent. The larynx otherwise appeared healthy. The trachea was normal in appearance.

The thyroid gland appeared small, and on section was of a fibrous character.

The spleen weighed 3½ oz., was normal in size, of firm consistence, and moderately congested.

The liver was closely adherent to the diaphragm, and when removed its upper surface was covered to a considerable extent with fibrinous exudation. It weighed 51 oz., was of firm consistence, and to the naked eye appeared to be in a condition of commencing cirrhosis. It was not enlarged, nor was it markedly congested. The gall-bladder contained fluid bile, and was of fair size.

The pancreas presented quite a healthy appearance, except that it was somewhat green in colour, probably due to bile staining.

The kidneys together weighed 12 oz.; they were lobulated in form, and somewhat congested. The cortex was perhaps rather thinner than usual, but the capsule was not markedly adherent. The atrophy of the cortex was probably due to a moderate interstitial nephritis. In the pyramids were a few white spots resembling miliary tubercles.

The brain weighed 46 oz. The membranes at the base presented quite a healthy appearance. Over the vertex the capillaries were perhaps a little congested. On careful examination throughout, the brain presented a healthy appearance.

The further examination of the organs was carried out by myself. The thyroid gland removed from the adjoining parts was found to weigh 83 grs., as compared with the normal weight, usually estimated at from 1 to 2 oz. Both lobes were of the usual shape. The left measured in its longest diameter $1\frac{3}{4}$ inch, and in its broadest diameter five-eighths of an inch. The normal lobe is estimated at about 2 inches long and $1\frac{1}{4}$ inch broad. The right lobe measured in length and in breadth much the same as the left. The lower border of each lobe extended down to the fourth tracheal cartilage; normally it extends as low as the fifth or sixth. The isthmus in the middle line was of normal breadth, viz., half an inch. Sections of both lobes and isthmus were cut and examined microscopically, when it was found that the normal structure of the gland had entirely disappeared. Instead of finding numerous closed vesicles lined by epithelium and held together by areolar tissue, the gland was practically one mass of fibrous tissue. In unstained specimens the individual fibres of this tissue appeared quite translucent. Staining with logwood brought out the nuclei present, but they were not numerous. There was also evident in these logwood-stained specimens, and still more in those stained with picro-carmine, what has been described by Ord[1]

[1] William M. Ord, M.D. Lond., F.R.C.P., "On myxœdema, a term proposed to be applied to an essential condition in the 'cretinoid' affection occasionally observed in middle-aged women," *Medico-Chirurgical Transactions*, London, 1878, vol. lxi, p. 57.

as "cell-crowded" patches. Most of these areas are seen to consist simply of an aggregation of small round cells in the midst of fibrous tissue, but in a few the remains of the normal thyroid vesicles could be detected. These were small, misshapen, and devoid of their proper epithelial lining, while within were irregular-shaped cells of various sizes.

Fig. 3, reproduced from a micro-photograph (p. 334) taken by Dr. Leslie Buchanan, shows very well the fibrous tissue, the numerous round cells, and the remains of the thyroid vesicles. In other parts of the sections there could be seen vesicular elements, altered in the manner above described, but with few round cells in the neighbourhood. Throughout the fibrous tissue there could be seen a fair supply of vessels, the larger of which showed considerable thickening of the middle and external coats, a fact already pointed out by Ord and subsequent observers. In the present case, however, one has to remember the possibility of vascular changes associated with the cardiac condition which might occur independently of myxœdema.

Ord further refers to a pathological change "in the muscular tissues, particularly in the heart," where "the same sort of excess of cement, with induced attenuation of the muscular elements, is clearly to be recognised," comparable to the fibrous tissue formation in the thyroid, with the annihilation of the vesicular elements. In this case the cardiac muscle was carefully examined microscopically, but no such change as he describes nor any other abnormal condition was observed.

In the liver the only pathological change detected by the microscope was a slight degree of cell infiltration in the capsule of Glisson. This corresponded with the naked eye appearance of the liver noted by Dr. Workman as indicating the beginning of cirrhosis.

In the kidneys a peculiar pathological change, affecting the Malpighian corpuscles, described by Ord, was also observed. The capsule of these bodies in may instances appeared greatly thickened, encroaching upon and tightly embracing the glomerulus within. On examining the thickened capsule with the high power, the fibres of which it was composed appeared to be thick and translucent, staining uniformly. Only a few nuclei could be detected. The glomerulus itself in many had apparently undergone a similar change, forming with the capsule one fibrous mass. In some this change seemed to have affected the glomerulus first, the capsule only secondarily and to a less extent. In these cases the tuft had become affected from the side to which it was anchored by

the vessels. The process gradually extending inwards had ultimately involved the whole glomerulus.

Fig. 4, also reproduced from a micro-photograph (p. 335) by Dr. Leslie Buchanan, shows a normal Malpighian corpuscle, and another which has been transformed into fibrous tissue. There is also to be seen, in the neighbourhood of these altered Malpighian corpuscles, proliferation of round cells. In the microscopic sections there was also evidence in some places of some degree of interstitial nephritis.

The skin from the back of the hand was also examined, and it was found that there was an abnormal proliferation of cells in the corium, especially along the course of the capillary vessels. With regard to the sudoriparous glands, these were not atrophied, but their epithelium was much swollen, indicating a condition which might possibly have interfered with their function, and thus explained the dry condition of the skin.

I have to acknowledge the assistance of Dr. A. S. Dick and Dr. R. K. Howat, late house physicians in the Royal Infirmary, who reported and took notes of the case.

Dr. Middleton had seen the patient, and quite agreed with the diagnosis. It was only the second time he had met with myxœdema in a male, and, curiously enough, in each of these cases the thyroid treatment had failed, and a fatal result had occurred as a result of the presence of pathological conditions other than those involved in the diagnosis of myxœdema. The first case was one in which the patient died from an intra-thoracic tumour. Otherwise his experience of the thyroid treatment had been most satisfactory.

Professor M'Call Anderson had never met with a single case of myxœdema which had failed to be rapidly and completely cured by the administration of thyroid. At the same time, our experience of other remedies should lead us to expect that idiosyncrasies of particular patients may also influence the response obtained under the treatment by thyroid gland.

Meeting XIV.—7th May, 1897.

Dr. Walker Downie *in the Chair.*

I.—Case of Cerebellar Abscess.

By Dr. Barr.

Dr. Barr showed, as a fresh specimen, a brain and right temporal bone removed *post-mortem* from the body of a man, 45 years of age, who had suffered from purulent middle ear disease for five years, ending in cerebellar abscess, lepto-meningitis of the base, and thrombosis of the cavernous sinuses. There was a ragged aperture in front of the right cerebellar hemisphere, just where the latter lies in contact with the internal auditory meatus. This led into an abscess cavity, occupying the greater part of the right hemisphere, and containing pus which had a most offensive odour. There was fibrinous exudation in considerable quantity over the base of the brain, especially at the fissure of Sylvius. There was no purulent formation in the temporo-sphenoidal lobe or other part of the brain, and the condition of the temporal bone showed that the septic invasion from the middle ear took place through the labyrinth and internal auditory canal. The auditory and facial nerves in the internal auditory meatus were reddened, swollen, and matted together. There was neither thrombosis of, nor purulent formation around the sigmoid sinus; there was, however, distinct thrombosis of the cavernous sinus on each side.

II.—Excision of the Scapula for Sarcoma.

By Dr. Edington.

The patient was a girl of 8 years. When first seen there was a fluctuant rounded tumour occupying the infra-spinous fossa of the left scapula. Incision demonstrated the absence of pus, and allowed removal of a portion of the tumour for microscopic examination. The growth being undoubtedly sarcomatous, Dr. Edington removed the entire scapula (27th December, 1896), and there has been no recurrence to date (3rd July, 1897.) Microscopic examination of the tumour showed for the most part spindle cells; there were, however,

some rounded cells, and also multinucleated masses of protoplasm.

Mr. H. E. Clark thought Dr. Edington ought to be congratulated on having been so fortunate as to secure his patient so early in the development of the disease. Even here, however, he feared the outlook was not an encouraging one, for in these cases recurrence—and even early and wide-spread recurrence—in the internal organs was almost a certainty. He had published a case which illustrated this statement. There could be no doubt that Dr. Edington's procedure was the right one to adopt, and the fact that the disease had not extended to the bone was decidedly in the patient's favour. The preponderance of spindle cells in the tumour pointed in the same direction. The resulting limb was a very useful one, and the removal of the disease was as complete, and the chance for the patient as good, as if amputation had been performed. The chief disability from the operation was a loss of the deltoid function, and in his own case he had met this to some extent by leaving the acromial end of the spine of the scapula, thus retaining as much as possible of the power of abduction and elevation of the humerus.

Dr. Dalziel considered it of great importance to note that this was not a sarcoma of the scapula in the sense that it was a growth originating from the bone or extending to the bone. Hence it did not, in his judgment, entail such serious probabilities of rapid recurrence as a true sarcoma of the scapula undoubtedly did. He had performed the operation himself and considered the difficulty and gravity of the procedure were by no means great for a major operation. In his case he had attached a portion of the deltoid to the fascia connected with the posterior aspect of the clavicle, and this secured for the patient a more useful limb. The operation was certainly to be preferred to amputation.

Dr. Lindsay Steven said it was very unlikely, in his opinion, that a sarcomatous growth would take origin from the substance of the scapula itself, and therefore he failed to appreciate the distinction which Dr. Dalziel attempted to establish.

Dr. Dalziel replied that whatever might be the pathological position, the clinical consequences associated with sarcoma of the bone on the one hand, and with sarcoma of the muscular coverings on the other, were very different.

III.—MALIGNANT TUMOUR OF THE BRAIN.

By Dr. Barr and Dr. J. H. Nicoll.

Dr. Barr and Dr. Nicoll showed a malignant tumour of the brain originating in the middle ear. The symptoms had simulated temporo-sphenoidal abscess, and the cranium had been opened and the tumour partially removed.

The patient was a boy, 12½ years of age. He was first brought to Dr. Barr, sixteen months before his death, owing to severe pain in the right ear. There had also been a very slight discharge from the ear for three months, and the hearing on that side was very defective. A mass resembling a polypus was seen in the external auditory canal, but not protruding from it; it differed from an ordinary aural polypus in being exquisitely painful to the touch of a probe, which also caused more bleeding than usual. Dr. Barr removed the growth by means of a wire snare, under chloroform; its texture seemed to be peculiarly strong and tough, more like a fibrous polypus than the more common mucous variety, and the bleeding which followed its removal was unusually severe. The growth undoubtedly sprang from the wall of the tympanum, the tympanic membrane being almost entirely destroyed. Four months afterwards he was again brought to Dr. Barr with a similar growth, this time protruding from the external orifice of the ear. It was in like manner removed with the snare. Recurrence took place once more, after a few months, and a more radical operation was performed, the growth being not only removed from the external auditory canal, but, opening the mastoid antrum and the other cavities of the middle ear (which were found occupied by similar masses), Dr. Barr cleared them out as thoroughly as possible with a gouge. During all these months severe pain in the ear, and also to a less degree in the head, occurred intermittently, and the sensitiveness of the interior of the ear was so great that nothing could be done without chloroform. The discharge from the ear had also continued. Soon afterwards graver symptoms manifested themselves; these were persistent vomiting for several days, increased headache intensified on the right side, and followed (in a few days) by subnormal temperature and pulse, great drowsiness and stupor, ocular paralysis, and optic neuritis, clearly pointing, as was thought, to temporo-sphenoidal abscess, and it was decided, after a consultation with Dr. James H. Nicoll, to trephine the skull in the usual situation for temporo-sphenoidal abscess. The operation was

attended by great difficulties in connection with the anæsthesia. Probably within ten minutes of the beginning of the operation, and before the skull was opened, the respiration gradually failed till a condition of absolute apnœa resulted, the pulse remaining quite good. Then artificial respiration was carried on, and tracheotomy was performed. For an hour artificial breathing was carried on by Dr. Connal and Dr. Fred. Adams alternately, and although the pulse continued to be perceptible, a fatal termination seemed impending. It was then resolved to open the skull at all hazards. This was carried out under great difficulty owing to the necessary movements of the patient's arms during artificial respiration. Dr. Nicoll, however, succeeded in removing a disc of bone, when a marked bulging of the dura mater presented itself, which was opened with a knife, and then the first spontaneous sob-like inspiration by the patient was heard. The brain (also bulging) was then explored by trocar, but no pus was found. Respiration improved, and the right pupil began to contract. The trephine opening in the bone was now enlarged by Dr. Nicoll with gouge forceps, and the brain again explored by trocar, when there was found a hard resistant mass under normal brain cortex. The cortex was displaced and the mass (grey and firm) was exposed. A good deal of it was shelled out, but on introducing the finger Dr. Nicoll could feel it in and on the temporal bone (*i. e.*, involving base of skull). The patient by this time became partly conscious, moaning, and finally putting his hand up to the head where the wound was. He ultimately rallied so far that he lived till the 2nd August, about two and a half months after the operation.

The growth was of very considerable size, firm in texture, and attached chiefly to the floor of the middle fossa of the skull. It consisted of two portions, the one external to the skull being the extension of the tumour through the operation opening. In this direction the growth became very exuberant after the opening of the skull, so that, during the two and a half months which intervened between the last operation and the death of the patient, portions had to be frequently sliced off by Dr. Nicoll. The chief mass of the tumour, however, was situated within the skull, and although its tissue was found permeating the neighbouring structures, no actual destruction of bone or fibrous tissue had taken place. The mass was, no doubt, directly connected with a similar growth in the middle ear, where the disease really originated. From the middle ear it probably first sprouted outwards into the external meatus in the form of the polypoid

looking excrescence corresponding with the fungus hæmatodes of Toynbee. Histologically, the growth appeared to be of the nature of carcinoma, although clinical considerations rather favoured the view of its being sarcomatous.

Dr. J. G. Connal, who had administered the anæsthetic during the operation, read the following note:—

There was nothing in the condition of the heart or lungs to contraindicate chloroform—indeed, I had on three previous occasions given chloroform to this same patient (one of these operations being rather a protracted one), and on all these occasions he had taken the chloroform well.

It will be noticed that the condition of the patient before this last operation was one of advancing and deepening coma.

About ten minutes after the beginning of the operation I noticed that the breathing was becoming shallow and embarrassed, though the pulse at the wrist was full and regular. The operation was discontinued. The patient was turned on his back and the tongue pulled forward, but notwithstanding this the breathing became more and more shallow and finally ceased. Artificial respiration was at once resorted to, and air entered the lungs quite freely, but so soon as artificial respiration was discontinued matters were as before. There was no voluntary attempt at breathing. It was perfectly evident that there was no laryngeal or tracheal obstruction to the free entrance of air into the lungs; but, after some time, a little mucus gathered at the back of the throat, and it was considered advisable to perform tracheotomy. This was done by Dr. Nicoll, but still there was no respiratory effort, and we were confronted by the difficulty that the patient made no attempt to breathe while all this time his pulse was good. The patient's face was now of an ashy-grey colour, and, as showing the degree of apnœa, the anal sphincter relaxed. For one hour and ten minutes we performed artificial respiration, when it was suggested that the skull should be trephined. Dr. Nicoll rapidly did this, though working under the great disadvantage that he operated while we were keeping up artificial breathing. As soon as the disc of bone was removed from the skull there was a bulging of the membranes, and now for the first time the patient made a voluntary effort to breathe, shallow at first, but shortly after that a deeper breath. The pulse, which had been good all this time, was now noted to be a little weaker.

Dr. Nicoll was meantime removing portions of the growth, and soon respiration was quite established; indeed, it was not

long before the patient began to cry out and to raise his hand to his head. The right pupil, which had been much dilated before and during the operation, now began to contract, and the operation was finished without the further administration of chloroform.

The anæsthetic employed was Duncan, Flockhart & Co.'s pure chloroform, and the method adopted was the drop method on the open mask. I don't think I had used much more than 1 dr. of chloroform from the time the patient was placed on the table till the operation had to be suspended on account of the apnœic condition supervening.

What can have given rise to the condition impeding voluntary respiration might be a matter for some speculation, but it was probably due to intracranial pressure, leading to œdema of the brain and distension of the ventricles. The fact that immediately after the trephine opening was made the membranes bulged outwards and there was a voluntary effort at respiration, seems to point to this conclusion.

It is acknowledged that chloroform has a definite risk in cases like this, and Professor Macewen has emphasised this in his work on *Pyogenic Diseases of the Brain and Spinal Cord.*

Mr. H. E. Clark had suffered from a somewhat similar experience, as far as the chloroform difficulty was concerned, in a case of cerebellar abscess. He was only sent for when the chloroform difficulty arose, and knew nothing of the history or nature of the case. No intracranial condition was known to exist, although when the condition of apnœa developed suspicion arose, and a suggestion to open the skull was made, but was not adopted. Tracheotomy was performed, but without benefit. Artificial respiration was maintained for upwards of twenty-four hours, and on *post-mortem* examination the cerebellar abscess was discovered. These experiences conveyed a very obvious lesson in regard to the administration of chloroform in cases where there was abnormal intracranial pressure.

Dr. Alex. Robertson remarked on the diagnosis of abscess which was made in the case. He considered some of the facts formed a basis for an opinion in opposition to that view. This was especially true of the progressive and, in the end, extensive paralysis of the ocular muscles, which was not to be expected from intracranial abscess. The severity of the optic neuritis, too, was much more suggestive of tumour, as was also the intensity of the pain. Too much weight might be

placed on a low range of temperature and a slow pulse as indications of the existence of abscess. The facts, as stated, seemed to him to carry a diagnosis of tumour rather than one of abscess. In reference to the failure of the respiration during chloroform administration, he had seen the case quoted by Mr. Clark, and agreed that the condition was probably due to congestion or œdema increasing an intracranial pressure already much in excess of the normal.

Dr. Lindsay Steven, from the examination of the specimen, would have been inclined to conclude that the origin of the tumour was intracranial, and that in its extension it had involved the middle ear. Such a large growth within the skull, compared with the small size of the portion presenting in the external meatus, seemed to him very unlike what one would expect in a tumour arising outside the cranial cavity. He thought, on the whole, that the growth was a sarcoma.

Dr. Workman acknowledged the great difficulty he felt in deciding between the carcinomatous and sarcomatous theory of the tumour. The sections in some respects certainly suggested cancer, but, regarding the case as a whole, his verdict would be in the other direction. He suggested that a number of sections stained with various agents should be prepared. In this way histological grounds for a confident conclusion would probably be obtained.

Dr. Barr, in reply, said he had never before seen a case in which chloroform produced anything like the condition observed in his patient. He readily assented to the remarks made by Dr. Robertson. Probably one was too ready to conclude that when, with a history of discharge from the ear, symptoms of intracranial complications arose, the case was one of abscess. Looking back, it was evident that another interpretation might have been put on the case before operation was recommended. It was unfortunate that the tumour removed from the external meatus had been lost, and so its microscopical significance was unknown. Had it been examined when removed, the diagnosis would probably have been different, though, he must say, there was little or nothing in its general character to give rise to suspicion.

Meeting XV.—14th May, 1897.

The President, Dr. W. L. Reid, *in the Chair.*

I.—Septic Thrombosis of the Lateral Sinus following Influenza—Operation—Recovery.

By Dr. Walker Downie.

The patient was brought before the notice of the Society as an example of extensive and deep-seated mischief beginning as a middle-ear catarrh, the result of epidemic influenza, in a man well advanced in life (age 66), and as a case of complete recovery following an extensive septic thrombosis of the lateral sinus.

A chart of the temperature was also exhibited, the peculiarity of which was that for two weeks after operation the temperatures registered were for the most part subnormal, ranging from 96·4° to 98° F. Convalescence was in other respects most satisfactory, and he was dismissed well within three weeks from the date of operation.

Mr. H. E. Clark commented on the low range of the temperature prior to operation. This he considered rather remarkable seeing that the case was a septic one and the patient not in a condition of coma. Possibly the presence of so much pus inside the cranium, and the consequent increase in the intracranial tension, was the explanation. He was accustomed to large waves of temperature disturbance in similar cases.

Dr. Alex. Robertson thought it more probable that the absence of fever was due to some circumstance which had prevented the absorption of septic matter into the blood.

Dr. Downie, in reply, remarked that the patient was only two days under observation when operation became imperative. Hence it was possible there had been more febrile reaction earlier in the case, and this might have been repeated had the operation been delayed. But the circumstances rendered delay impossible.

II.—EXCISION OF THE LONG BUCCAL NERVE FOR FACIAL NEURALGIA.

By Dr. T. K. Dalziel.

The patient, a woman of 58 years, had suffered for seven years from extremely severe facial neuralgia, involving all the branches of the right fifth nerve. The pain had been continuous, and was most marked at the angle of the mouth. At times the area supplied by the long buccal nerve was alone affected, the sensation being described as an "intense burning feeling."

During these seven years all the usual remedies had been tried without avail, so that the patient had made up her mind to endure her agony. She, however, consulted Dr. Stark, who sent her to Dr. Dalziel.

As the pain seemed to originate in the long buccal nerve, and to be most intense there, though ever and anon spreading to the other branches of the fifth, it was determined to excise the nerve. An incision in the line of the facial branches was made below Steno's duct, the border of the masseter identified, and the zygomaticus major divided. The buccal pad of fat was removed, and the nerve found on the buccinator muscle under cover of the anterior margin of the coronoid process. The nerve was seized as near its root as possible and torn away. Altogether about 1½ in. of nerve were thus removed. The wound healed in a few days with almost no deformity, though since the operation the scar had become depressed to an appreciable extent, probably due to the absence of the buccal pad of fat. Since the operation three and a half months ago there had been absolutely no pain, and the patient is evidently in excellent health.

Mr. H. E. Clark drew attention to the operation in which the nerve is reached through the buccal cavity. It was quite possible to remove a considerable length of the nerve in this way, and the operation had the advantage of not risking the facial nerve, and of not leaving a cicatrix on the face. The method was well worth keeping in mind.

Dr. Dalziel had considered the plan alluded to by Mr. Clark, and possibly in a younger patient he might have run the risk of a septic wound in the buccal cavity for the sake of avoiding an external cicatrix. But in the present case his decision had been in the opposite direction, and he thought rightly so; the patient herself also was quite satisfied.

III.—EXCISION OF A SIMPLE STRICTURE OF THE RECTUM BY KRASKE'S METHOD.

By Dr. T. K. Dalziel.

The lad, aged 4 years, had been born with an imperforate anus, relieved by the passage of a pair of dressing forceps through the septum. Since birth this aperture had been kept open by the use of bougies, and more usually by the mother's finger. Before each evacuation of the bowels the finger had to be inserted, causing great suffering, and for the last year inducing very constantly some bleeding. Dr. Leitch, of Gourock, recognising the necessity of interference, had sent the boy to Dr. Dalziel. On examination it was found that the rectum was narrowed to almost complete occulsion $1\frac{1}{2}$ in. from the anus, and was surrounded by a mass of cicatricial tissue preventing dilatation of the stricture, which could only be relieved by crushing through the ulcerated tissue.

It was determined to excise the stricture, and suture the portions of rectum together. This was done through an incision over the sacrum. The coccyx and two lowest sacral vertebræ having been removed, the rectum was cut through above and below the stricture, which, with the surrounding mass of cicatricial tissue, was removed. The stricture involved about $1\frac{1}{4}$ in. of the rectum.

Suturing was difficult owing to the rectum above the stricture being much dilated and with thin walls, while below it was much contracted and with hard, thick, callous walls. Only a portion of the circumference of the upper segment could be attached to the lower.

The patient made a good recovery, and though there is still some tendency to narrowing of the lumen of the bowel, it gives no trouble, and is easily kept dilated by the passage of a bougie every few weeks. The bowels act daily without trouble, and, as the patient shows, there is little evidence of this somewhat extensive operation on external examination.

IV.—CASE OF GANGRENE OF THE LUNG TREATED BY EXCISION OF THE GANGRENOUS TISSUE.

By Dr. T. K. Dalziel.

The patient, aged 10 years, was a stout, healthy-looking lad. He had been first seen by Dr. Dalziel, with Dr. Smith and

Dr. Cunningham, in Dumfries last autumn. The history indicated the cause of the lung trouble to be the inhalation of a portion of toast sometime previously, and which caused complete suffocation, relieved by an immediate laryngotomy by Dr. Lawson, of Dunbar, where the child was staying at the time. From this time the symptoms of lung trouble commenced, a pronounced pneumonia leaving a consolidation which showed little tendency to clear up. A fortnight before the operation patient had a sudden and violent accession of symptoms, with high temperatures, and physical signs suggestive of fluid in the chest. On examination the most striking feature of the case was the extreme stench from the patient's breath. There was no expansion of the affected side of the chest. No displacement of the heart. The child looked extremely ill. A hypodermic needle enabled us to withdraw a small quantity of dark stinking fluid.

The chest was opened by removing 3 inches of three ribs, and, the intercostal arteries having been ligatured, the pleura was turned back as a flap. The visceral and parietal layers were adherent. A thin layer of lung was divided, and numerous sloughs of lung tissue removed after ligation of their attachments. The cavity was gently irrigated and drained.

Immediate improvement set in, but as the ultimate sinus had not closed, it was now proposed to open up the sinus and find the cause of non-healing.

The boy's general condition was evidently very good, though the whole of the left side of the chest was dull to percussion. His temperature had been normal for some time, and he was daily putting on flesh.

Mr. Clark congratulated Dr. Dalziel on the boldness and success of his operation. The result must be regarded as a distinct encouragement to urge surgical interference in such cases.

Mr. Maylard regarded the case as one full of interest and instruction. He had never before seen a case of this kind in which operative measures had been successful. It was certainly fortunate that when the whole lung was dull to percussion the necrotic area was found on operation, and this experience would be an encouragement to other surgeons. The existence of a very fœtid odour in the breath, which was noted in this case, he had observed before in children when a foreign body had gained admission to the lung, and he considered it a symptom of great significance. The persistence of a sinus in Dr. Dalziel's patient was suspicious of some foreign body still

present in the lung. He would like to hear if during the operation anything to account for the mischief was discovered. Mr. Maylard referred, in the course of his remarks, to several other cases in which the admission of foreign bodies—in one instance a tooth—had been followed by gangrene of the lungs.

Dr. Pryde had some years ago seen a similar case in which the foreign body was a horse-bean.

Dr. Lindsay Steven gladly recognised the interest and value of the case, but wished to know what was the precise indication which led to the selection of the site for operation, and what was expected from the operation, seeing that over the entire lung there was dulness on percussion. These questions seemed to him to involve important difficulties in dealing with such cases by surgical measures. The condition of the pleura was also an important point, and he would like to hear what Dr. Dalziel would advise if no adhesions existed.

Dr. Dalziel, in reply, stated that the passage of an aspirating needle detected fœtid fluid, and, though only a few drops came away, this was a direct guide for operation. Fortunately the pleura was adherent, but had it not been so he would have taken steps to secure adhesion before incising the lung. In another case in which he had operated he had stuffed the pleural cavity with iodoform gauze and then washed out the cavity in the lung, the condition of the patient forbidding delay or further operative measures. The nature of the foreign body in the present case rendered the chance of its detection unlikely or even impossible.

V.—CASE OF CEREBRAL TUMOUR—OPERATION—DEATH.

By Mr. H. E. Clark.

The patient had been under the care of Dr. T. K. Monro and and Dr. Alex. Robertson, and these gentlemen submitted the clinical history as far as this was known prior to the man's admission to Mr. Clark's wards in the Royal Infirmary.

Dr. T. K. Monro—This patient was under my care as an out-door patient for nine months—viz., from March to December, 1896—that is, to within six weeks of his death. He had good health till about Christmas, 1895, when he began to suffer at times from what the doctor thought was liver disorder; he had headache, sickness, and pain in the back, but no vomiting. Early in February he had two short attacks of vertigo. In the latter part of February he became subject to attacks of numbness and weakness on the left side, beginning in the

upper arm, halfway between shoulder and elbow, passing down to the hand, and thereafter, while the upper limb was recovering, affecting the lower limb in the same way from above downwards. The face was not affected. The leg in such an attack was flaccid; there was never spasm or twitching.

For a time the diagnosis was very doubtful. Thus, with regard to the three so-called cardinal symptoms of intracranial tumour—headache, vomiting, and optic neuritis—the first seems to have been unimportant up to the time of his first visit, and at the time of the visit was quite absent; whilst the patient could not remember having ever vomited in his life, and his optic discs were normal.

The result of treatment by bromide and iodide of potassium was encouraging for a short time, but during the summer he had attacks at least once a week. About the beginning of September he had twitching of the left arm, and a fortnight later, the same symptom, followed by loss of consciousness and general convulsions. He had headache all day before this attack, but no vomiting; otherwise he had no headache between his attacks. About this time, it was ascertained that one sister took fits, and another had had chorea; and as it was noted in November that the fits seemed to be very greatly under the control of the bromides, there was still a possibility that the disease might not be due to gross changes. As late as 27th November the optic discs were noted as normal.

Three weeks later (11th December, 1896) patient came to see me in another part of the hospital, just before he entered Dr. Robertson's ward as an in-door patient. His condition had changed considerably. He had paræsthesia of the left limbs, especially of the leg; hemiparesis of the left side (including the face); constant and sometimes agonising vertical headache; slight defect of vision now present for a fortnight, and commencing double optic neuritis. There could no longer be any doubt that the patient had an intracranial tumour.

Dr. Alex. Robertson—The patient was admitted to my wards on 19th December, 1896. I formed the opinion that he was suffering from a tumour of the brain, the probable site of the tumour being the motor area of the right cerebral convolutions. The grounds for this opinion were (*a*) severe and intermittent headaches, affecting the right side; (*b*) attacks of vomiting; (*c*) left unilateral fits, mostly Jacksonian in character; (*d*) partial effacement of the left naso-labial fold; (*e*) presence of left ankle clonus and exaggeration of left knee-jerk; and (*f*) latterly, intense neuro-retinitis. The absence of

tenderness on digital percussion of the skull, and the freedom of the history from middle-ear disease or from any other event likely to lead to suppuration within the cranial cavity, were also noted.

The exact situation of the tumour in the motor area was somewhat uncertain. At first the fits were in the arm, and there was evidence of slight left facial paresis, but latterly the development of left ankle clonus and recognised weakness in the left lower limb seemed to show that the motor centres for the leg were largely involved. I quite agreed with Mr. Clark that an operation should be performed. The result of the operation Mr. Clark will describe. One or two special features of the case may be noted. The prominence of the sensory symptoms in all the spasmodic seizures is explained by the subcortical position of the tumour leading to implication of sensory fibres. The absence of pain on percussion of the skull was also due to the deep position of the tumour. The late appearance of optic neuritis is not uncommon in the case of tumour, especially when the growth is situated towards the anterior part of the brain.

Mr. Clark stated that the patient was removed to his wards on 8th January, 1897. Soon after admission he vomited twice, and there were marked twitchings of the left arm and left side of the face. Patient was very restless, and complained of great pain in the back of head. Temperature, 99·4° F.; pulse, 68; respirations, 18. On the following day (9th) it is noted in the Ward Journal that there was paresis of left leg and left arm, especially left forearm. Patient complained of less pain, was drowsy, and slept much. On the 10th there was complete retention of urine. On the afternoon of this day trephining was performed, a large "omega" flap being raised over the motor area of the right side, and the whole of the structures (including the periosteum) turned down. A $1\frac{1}{4}$ inch trephine was applied over the arm centre, and the disc of bone being removed, the aperture was further enlarged upwards by means of rongeur forceps. The dura was found to be greatly congested, and there was great tension of the brain substance. The dura was laid open, and there was found to be marked congestion of the vessels of the surface of the brain, but that organ pulsated freely over the whole exposed area, and there was no appearance of any tumour. A searcher was introduced into the brain and made to penetrate for a distance of $2\frac{1}{2}$ inches in various directions, but no fluid was reached, nor did the instrument appear to meet with any more resistant substance than normal brain tissue. Reluctantly, therefore,

the wound was closed, the operator being convinced of the presence of a tumour on that side of the brain, but satisfied it was not removable through the opening made. The day after the operation it was reported that the patient had remained unconscious since the operation, and that there was almost complete paralysis of left arm and leg. At 8 P.M. temperature was 103° F.; pulse, 142, feeble; urine retained. Consciousness returned on the 12th, but he never regained intelligence; he was very restless, throwing his right arm and leg about and endeavouring to remove the dressings from the head. The wound was dressed on the 17th January, when there was found to be some protrusion of brain substance through the trephine opening, and a free escape of cerebro-spinal fluid, but no suppuration. On the 20th January he again became unconscious, and remained so till his death, which took place on the 25th, fifteen days after the operation.

Mr. Clark, in commenting on the case, stated that the arm area was selected because the convulsive seizures invariably commenced in the left arm, and the loss of power was greater in the arm than in the leg. As the tumour was situated beneath the superior parietal gyrus it could only have been reached by an opening much higher up and further back than that actually made. At the time of the operation the propriety of making a large osteo-plastic flap, such as would expose the whole motor area at once, was discussed, but was negatived as being unduly severe, and the localisation signs appeared sufficiently definite. Had the whole area, however, been exposed it is doubtful if the tumour would have been found, for it was not situated in the cortex, but in the subcortical part of the hemisphere, and was covered by healthy cortex. Further, if identified it is not certain that it could have been removed, not being encapsuled, and its definition being very imperfect. He thought the case an important one, as showing how misleading the motor symptoms sometimes were, and he suggested that tenderness on percussion and site of pain were often more important than motor symptoms. In this case, although pain on percussion was not very marked, it was certainly more easily elicited over the upper parietal region than elsewhere.

Dr. Workman described the position of the tumour in the superior parietal convolution. It was distinctly denser and more firm than the surrounding brain tissue. Microscopical examination showed it to be a glio-sarcoma.

Mr. Maylard had operated successfully three and a half

years ago for a sarcoma of the frontal lobe, and had then encountered the same difficulty which Mr. Clark had met with —viz., the fact that the tumour was not situated exactly in the position suggested by the symptoms. In his own case, though the evidences pointed to irritation of the motor centres, the tumour was entirely in front of the motor area. He considered these cases showed that allowance must be made for the indirect pressure effects capable of being produced by a tumour upon portions of the brain not immediately in contact with the tumour mass. It was only by making a very large opening in the skull that he had been able to detect and remove the tumour in his case, and such procedure was justifiable, and might indeed be essential. His operation was followed by hernia cerebri, compelling him to slice away pieces of the brain, but ultimaltely he performed a plastic operation, and this proved successful. Paralysis, however, followed—a result, doubtless, of the loss of brain substance. The possibility of success in these cases was much influenced by the existence or non-existence of a distinct capsule round the tumour.

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